Improving participation of the public in coastal flood management: A case study from the Suffolk coast, UK

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Abstract

This research has been inspired by problems and delays that began with a change in policy proposed by the Environment Agency in 2003. The change was from a strategy of 'hold the line' of a sea defence to one of 'managed realignment' on a part of the coast of Suffolk, UK (Smith 2003). Many reactions to the proposed change were not favourable, protests and bad press ensued and the problem of acceptance was exacerbated by limited public knowledge, understanding or public participation before the change in policy.

One outcome of the initial negative reaction to the policy change has been the response of the Environment Agency in the area of the village of Orford, and indeed all along the Suffolk coast (See Figure A1). The Agency has been seen to make improvements in their efforts to be more inclusive of local people in their plans. Observations of how they have proceeded to engage with local populations along the Suffolk coast have been made in the ten years since 2003, and are reported in this research. The Environment Agency approach in this area, at least initially, has been from the 'top down'. This research aims to focus on improving engagement from the 'bottom up'. An integration of these approaches could be where solutions to problems with public participation lie. Solutions to integration have been reported in other research. One example is the work of Webler and Tuler (2006) in the US, which has particularly influenced the direction of this research.

The research focuses on the knowledge and involvement that individuals have about coastal flood management in a local area. Levels of knowledge and involvement are then used to aid an investigation into their problems with, and preferences for participation in flood planning. Assessment of the levels of knowledge and involvement of the whole sampled population of Orford was undertaken in a questionnaire administered in 2008. The classification of people with various levels of knowledge and involvement demonstrated that different groups of people and individuals had a variety of perspectives to participation in flood management. Perspectives were identified by using a Q Methodology carried out in 2009. People with different perspectives and levels of knowledge and involvement were engaged

in interviews for their views in 2010, and a cross section of villagers attended a workshop in 2011. The workshop provided an opportunity to suggest preferences for different forms of engagement.

The main implication of these findings is that a variety of engagements need to be planned to include a greater proportion of a population, and that previous approaches, for example village hall meetings and a 'one size fits all' approach, is not an inclusive solution to participation in coastal flood management. The research identifies significant problems or issues that local people felt inhibited involvement and makes recommendations for improving participation in flood management. Figure A1 below shows the location of the case study on the coast of Suffolk in East Anglia, UK.

Figure A1 Map of the location of the village of Orford on the Suffolk Coast and its location in the United Kingdom (UK)

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List of Acronyms

Acronym	Explanation
ACES	Alde Coast and Estuary Strategy
AGM	Annual General Meeting
AOEP	Alde and Ore Estuary Partnership
AONB	Area of Outstanding Natural Beauty
CAGs	Coastal Authority Groups
CHaMPs	Coastal Habitat Management Plans
CLA	Countryside Land Agency
CPWG	Coastal Partnership Working Group
CZM	Coastal Zone Management
DCLG	Department for Communities and Local Government
Defra	Department for Food Environment and Rural Affairs
DEP	Deben Estuary Partnership
DoE	Department of the Environment
DPD	Development Plan Documents
EA	Environment Agency
EPA	Environmental Protection Agency
EPP	Estuary Planning Partnership for the Alde and Ore
FC	Flood Compartment
FOE	Friends of the Earth
GIA	Grant in Aid Funding
HH	High Knowledge High Involvement
HL	High Knowledge Low Involvement
HWM	High Water Mark
ICZM	Integrated Coastal Zone Management
IDB	Internal Drainage Board
IPCC	Intergovernmental Panel for Climate Change
LA	Local Authority
LDF	Local Development Framework
LH	Low Knowledge High Involvement
LL	Low Knowledge Low Involvement
LWM	Low Water Mark
MAFF	Ministry of Agriculture, Fisheries and Food
MMO	Marine Management Organisation
MSP	Marine Spacial Plans
N2K	Natura 2000 Network
NC	No Category
NE	Natural England
NFU	National Farmers Union
NNDC	North Norfolk District Council
NOTT	New Orford Town Trust
NVCC	National Voice of Coastal Communities

Nvivo	Computer programme used for coding script
ODPM	Office of the Deputy Prime Minister
PC	Parish Council
PQMethod	Computer programme used in Q Analysis
P-sample	People
Q	Q Methodology
Q /set	Statements
RBMP	River Basin Management Plans
RFCC	Regional Flood Coastal Committee
RFDC	Regional Flood Defence Committee
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SCAR	Suffolk Coast Against Retreat
SCC	Suffolk County Council
SCDC	Suffolk Coastal District Council
SCHU	Suffolk Coast and Heaths Unit
SCI	Statement of Community Involvement
SCP	Sustainable Community Projects
SES	Suffolk Estuaries Strategies
SMP	Shoreline Management Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UEA	University of East Anglia
UKCIP	UK Climate Impacts Programme
UKCIP02	UKCIP scenarios published in 2002
UKCP09	UK Climate Projections 2009
UNECE	United Nations Economic Commission for Europe
WFD	Water Framework Directive
Z Scores	Scores in PQ Method Analysis

Glossary of terms

Bottom-Up Public Participation: Participation that allows for local people (not just stakeholders), to be included in some form of decision making (Harries and Penning-Rowsell 2011).

Coastal Flooding: Inundation of flood waters over low lying coastal land from the sea. This includes land in tidal rivers and estuaries (Source: Environment Agency 2009).

Coastal Flood Strategy: The Environment Agency strategies for flood risk are non-statutory and not legal documents. They are a business case and policy document that sets out the way the river and coastline should be managed for the next 100 years (Source: Environment Agency 2009).

Coastal Strategy: The strategic management of the coast as regards protection from erosion and flooding which are of vital importance to everyone living or working at the coast. However it can also (and should) have regard to impacts on the way the natural and historic environment is managed (Source: Environment Agency 2009).

Engagement: The process of participation, using engagement methods and approaches to aid greater participation (Source: Research Participants).

Inclusivity: To engage with as many of a local population as possible within limits, and with who would normally be expected to be involved (Source: The Concise Oxford Dictionary 2013).

Involvement: An assessment of participation**,** a way to measure ways of taking part in the process of participating. In this research measuring the levels of involvement by the number of flood management meetings attended, and/or belonging to groups associated with coastal flood management (Source: Research Participants)

Knowledge: In this research, and tested by a questionnaire, the range of information known of the causes, consequences, responsibilities and plans for, flood risk management along the coastline (Source: Research Participants)

Participation: Action to take part in planning or decisions. The main aim of this research is to improve participation in flood management (Source: Research Participants).

Permissive Powers: There is no right to flood or erosion protection. The Environment Agency and the District Councils have permissive powers, i.e. give permission for coastal defences, or carry out work themselves, to protect people and property. The Environment Agency definition for permissive powers is: 'This means that we may choose to intervene in the public interest, where we believe works would be beneficial and / or economically viable, but we have no legal duty to do so' (Source: Environment Agency 2009).

Shared Governance: Decision-making by agencies and authorities, that includes input from local people who are affected or interested, and are stakeholders and/or the public (Source: Kay and Alder 2005).

Top-Down Participation: Participation that is planned and executed by authorities, for example, the Environment Agency or local councils (Harries and Penning Rowsell 2011).

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Chapter 1 Introduction

1.1. Problem identification and responses due to changes in coastal flood strategies

The initial problem was identified from observations of the reactions of groups of local people in the area of the Suffolk Coast of East Anglia to changed recommendations from a Shoreline Management Plan (SMP), a document that recommends defence strategies along a coastline (Halcrow Consultants 1997; Smith 2003). The change to this SMP was introduced through an Environment Agency Strategy document in 2003 that recommended a change from the maintenance of a coastal defence (the 'Hold the Line' strategy), to one that suggested a strategy of a re-alignment of defences (controlled areas of flooding). The proposal by the Environment Agency Phase 2 Estuarine Strategy, in conjunction with Posford Duvivier consultants at the time, stated that the costs of defending mostly farmland, by maintaining or improving the estuary and river walls, had 'little economic value for the assets protected'. The reactions observed by some local people to these changes in flood management policy, was an increase in the activity and formation of action and pressure groups. These groups and individuals were, and in some instances still are, operating outside of the existing consultation processes of Local Government Plans and Environment Agency (EA) Strategies (Andren 2004; Boggis 2007; Green 2007: Kirby 2007; Page 2012).

Local responses to the change in policy included the setting up of a new Estuary Planning Partnership (see Section 3.5.1 for an explanation of this partnership). The new partnership instigated the formation of an group called Friends of the River who surveyed the economic value of the area, thought to be missing from deliberations in the 2003/2004 Environment Agency Strategies for the defence of their part of the Suffolk Coastline (Kay and Bushill 2004). Other pressure groups have also emerged, such as a politically orientated group called Suffolk Coast Against Retreat (SCAR) (NVCC 2011). This pressure group has pledged to preserve and protect the Suffolk coastline from erosion and flooding, and essentially to be very wary of change. The types of changes that local people have to adapt to are outlined in more detail in Chapter 2.

In 2008 there was a further reaction to an EA Strategy for flood risk planning in the Suffolk estuary of the river Blyth (see Figure 1.1 for the location of this estuary and the other Suffolk estuaries).

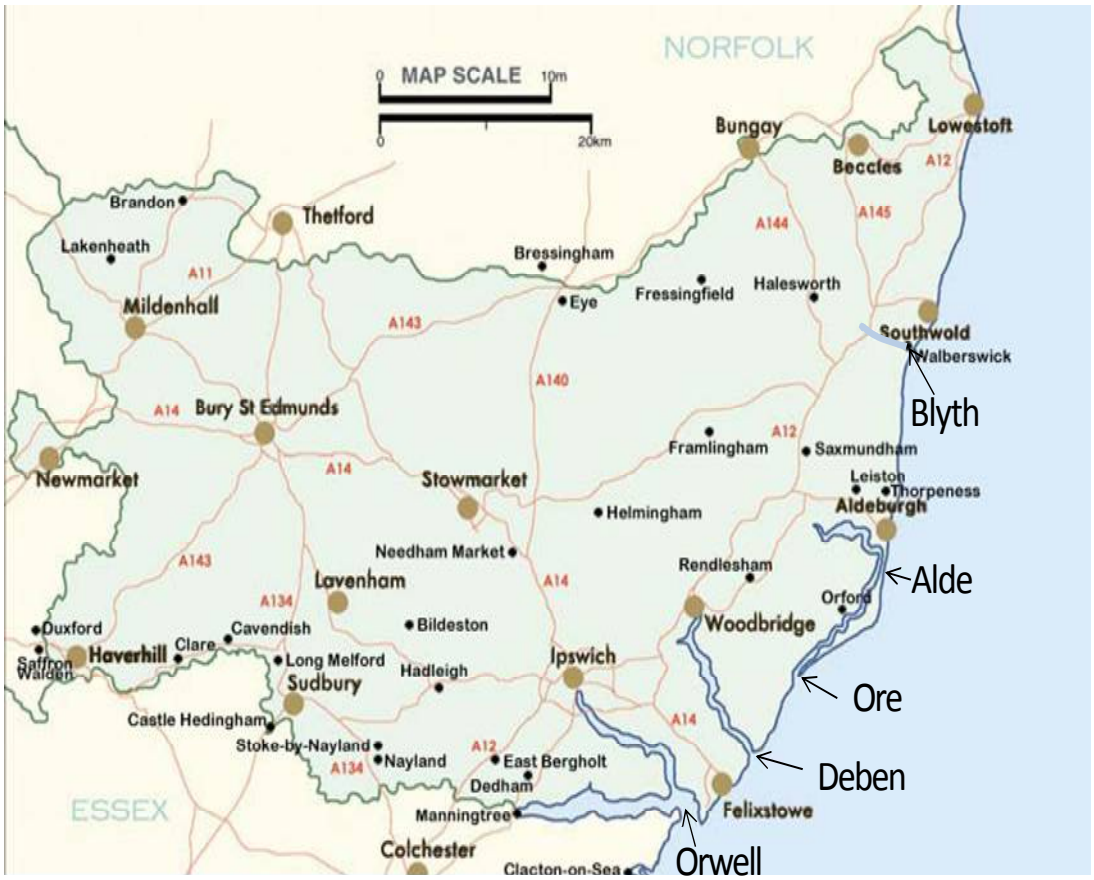


Figure 1.1 Map to show the county of Suffolk, the location of the village of Orford on the Suffolk coast, and the position of the estuaries of the rivers Blyth, Alde, Ore, Deben, and Orwell

There was a perception that in the River Blyth Suffolk estuary there would be an increase in flooding that would result in changing land use and a loss of housing and livelihoods. These consequences motivated over a thousand people to gather on Walberswick beach in SOS formation in protest (see Figure 1.2). This was reported in the East Anglian Daily Times on Monday 18th October, in 2008.

Figure 1.2 People gathering on Walberswick Beach in SOS Formation to protest about the Environment Agency Strategy for the Blyth Estuary, Suffolk. (Source: East Anglian Daily Times 18th October 2008, p. 3)

The problem identified was therefore that without an adequate relationship between policy makers, in this case the Environment Agency, and some groups of local people, policies cannot be enacted. Other research reported in 2011 has come to the same conclusion, that successful changes in policy direction require 'bottom up' support as well as 'top down' instruction (Harries and Penning-Rowsell 2011). The need for more inclusivity and involvement in flood management decisions has led to this issue being identified as a research problem.

1.2. Reasons to address the problem of participation in flood management

The local responses in Suffolk are in part a reaction to the withdrawal of funding from the Department for Food, Environment and Rural Affairs (Defra 2005) and the EA to maintain all riparian walls and coastal defences (Wilkinson 2007). EA options, such as managed re-alignment at the time of their 2004 plans, were also not considered a solution to flood control in the Alde and Ore estuary area of the Suffolk Coast. EA options are more fully described in Sections 2.4 and 3.5.2. The options for flood management could have been too narrow, or not properly understood. Reasons for this premise are sought in this research. The EA Suffolk Estuarine and Coastal Strategy in 2013 has not been completed or enacted and is now superseded in the Alde and Ore and Deben estuaries (see Figure 1.1) by joint estuarine strategies between the Environment Agency and local management groups. It has been seen to

be in the interests of the Environment Agency and Local Government to increase their efforts to include a larger section of the population to avoid a public perception that nothing is going to be done to protect coastal areas from flooding from the sea (Green 2007).

There are good reasons why local people should be involved in flood management decisions. The stalling of decisions for the Suffolk Coast and Estuarine Management Strategies from 2004 to 2013, and local protests demonstrate the importance of getting the process of the participation of the local population right, and also for it to be as inclusive as possible. (See Glossary for an explanation of terms). Not including parts of a local population in deliberations or seeking their knowledge and views for decision making can be the cause of local protests and has caused delays. This has stimulated the Environment Agency in the Suffolk area to actively engage in participatory planning to involve local people in their flood management plans.

One major problem that has been identified with the acceptance of plans relates to the knowledge that people have about their local area. Although this knowledge is considered valuable, it is not always integrated into the decision making process, often due to the constraints of present systems and engagement procedures (Mosse 2001). Flows of information may be constricted, and the systems to find out information controlled and closed (Mosse 2001). To a considerable extent it is thought that these difficulties can be overcome with greater efforts to be more inclusive in the participation and decision making process (Midgley et al. 2004; Bond et al 2004; O'Riordan et al 2005). Planning for a changing coastline should include local experience as part of a development towards pluralistic science. This will not only include scientists', research managers', policy makers' and managers' input into decision making but also the perspective of the general public (Chilvers 2007). This moves decision making beyond a positivist, 'expert knows best' approach to creating space for other kinds of knowledge that will make a decision more competent, relevant and workable (Berkes 2001). A backlash against a paternalistic 'expert knowledge' approach has been thought to alienate local people and although their inclusion in flood management decisions is desirable, it is a complex process to achieve (Smith 2008). This research aims to gain some insights into this complexity.

Research by Haines et al. (2002) in Australia also recognised that obtaining local knowledge and 'feeling the vibe' was a critical step towards effective and long term management planning in estuaries. When relationships between decision makers and local people break down, it can be because the views of local people have been seen to be based on emotion and fashion and not on scientific and professional judgements (Johnston and Soulsby 2006). However, unless local populations are involved, and effective methods to communicate with the local population established, there can be little exchange of knowledge, barriers will be difficult to overcome, and local people will not engage, or will protest and cause delays.

During 2010, an updated version of the Shoreline Management Plan with its associated consultation process was produced for the Alde and Ore estuary area of the Suffolk coast (see Figure A1). The view of the lead consultant, who organised the meetings for the plan, was that it was difficult to get more local people involved if they were not direct stakeholders, despite his best efforts (Oakes 2010). The public in general could therefore be said to be hard to engage. The practical problem of effective engagement with the public in flood management, especially if proposals made do not meet with popular acceptance and therefore are not enacted, is in need of further investigation. Engagement of local people in this research is regarded as the process of participation (see Page V, Glossary).

To gain a greater understanding of why people have problems with flood management proposals, and in what ways they could be better informed and included in decision making for flood management, people who are affected and reacting in a local area, needed to be studied. (Yin 2000; O'Riordan et al. 2005; Dalton 2006). Therefore the village of Orford was selected as a case study. The village has river walls protecting it from flooding, but also has land behind the walls lower than the height in the river due to land drainage. Therefore any overtopping of the walls by water from high tides travelling up the river that can be exacerbated by surges in the southern North Sea and strong north easterly winds can cause extensive flooding. This occurred in 1953 and a similar scenario was only just averted in 2007 by an offshore wind and the high tide not quite coinciding with the surge (see Section 2.2 for a fuller explanation). The flood water in 2007 that submerged the jetty is seen in

the aerial view Figure 1.3 projecting into the river at the bottom of the photograph, and the photograph on the front sheet of the questionnaire found in Appendix 1. The water height on this occasion also reached the top of the river walls and overtopped in a few locations. Local people in the Orford area were therefore potentially more aware of the problems of flooding from the sea.

Figure 1.3 Aerial view of the area surveyed. (Source: Orford website www.orford.org.uk)

The line on the photograph approximates the position of the 5m contour line that denotes the land liable to flood from the EA Flood Map and is also the extent of the 1953 Flood

To investigate problems of accepting flood management proposals it was felt that identification of present levels of knowledge and involvement of the population was required to explore theories about participation. Identification of levels of knowledge and involvement was thought to help establish a means of testing different ways to improve participation and to assess the process of involvement or lack of involvement in flood management (see Page v Glossary for definitions of

participation and involvement). The case study involved an in-depth investigation of individuals, their experience of flood management, the groups they belonged to and meetings they had attended, in the years up to and including the year 2008. The survey carried out in this year was an opportune time due to the recent near overtopping of many of the river walls, and perceived risk of overtopping in 2007.

One reason for appraising the level of knowledge of individuals was to assess the presence or absence of knowledge about the causes of sea level rise, or denial of the fact that it is happening, and that planning may be needed to ameliorate the consequences of flooding. It would also seem reasonable to assume that knowledge about flood risk and its management could be linked to involvement. This premise needs testing, as it suggests that a lack of certain knowledge may or may not directly lead to lack of engagement with flood planning processes. The accumulation of knowledge is the premise of the information-deficit model that states that levels of ignorance are a barrier to effective public involvement (Bulkeley 2000). Ideas about information deficit are discussed further in Section 3.6. However it was thought from the outset that knowledge or the lack of it will not be the only reason for involvement and participation in flood management.

Bulkeley (2000) has argued that understanding of global environmental issues must not just take into account local knowledge but also people's values and moral responsibilities. It is not just information that is required, but also social and institutional barriers that need to be overcome to increase public involvement. Identification of barriers that could inhibit involvement in flood management are also sought in this research. Barriers could include the fact that local people are not participating in any decision making process that would empower them to have a more relevant contribution to planning. Lack of empowerment could prevent local people having a greater share in the governance of their local estuary and coastline. These issues are discussed in Section 1.2.1. If barriers to involvement in flood management are identified, greater progress towards increased participation could be achieved, and this is discussed in Section 1.2.2. Identification of problems with participation could be addressed through improved processes of engagement that are reviewed in Section 1.2.3. It is thought that by identifying problems that local people

have with participation in flood management, solutions in the form of improved processes could result.

1.2.1. Empowering local people

One potential barrier to adequate effective participation relates to the power to make decisions, and whether decision making is what people really want (Bleese 2011). Some users may not wish to be involved (Tritter and McCallum 2006). However it could also be assumed that some people do want to have a say in decisions. A scale for assessing different degrees of participation in decision making is the Arnstein Ladder, a still used and often adapted (Scottish Executive 2002; Keen et al. 2005) model to demonstrate different levels of participation and decision making. Participation can vary, from not wanting to be involved in decision making, but possibly wanting to be informed, to actively controlling and funding decisions. Examples of these types of participation have been observed and developed in the area of Suffolk that stimulated this research. Table 1.1 gives an outline of Arnstein's 'levels' of participation. Table 1.2 proffers another analysis of types of participation by Keen et al. (2005).This table has additional indications, shown in bold print, of who is being observed to facilitate them on the Suffolk coast,

Table 1.1 Characteristics of participation adapted from Arnstein's explanations of 'A Ladder of Citizen Participation' (Arnstein 1969)

Participation Type	Explanation of Type of Participation
Citizen Control	Community control Control over decisions Power usually in the hands of the funder.
Delegated Power	Citizens dominant in decision making
Partnership	Shared planning and decision making Power base in the community
Placation	Some representation on advisory committees Rights and responsibilities not defined or ambiguous
Consultation	Opinions invited Usually in the form of surveys, meetings and public hearings
Informing	Often meetings, news and media, pamphlets, posters Opinions invited
Therapy	Problem reflected back
Manipulation	Being educated Getting support Being advised and persuaded

The Arnstein 'ladder' has been criticised for portraying participation as a power struggle, the goal is for citizens to arrest power from controlling organisations and institutions, and move up the ladder. It is therefore a linear and hierarchical measure of people's roles where responsibilities only change in relation to changing levels of power (Collins and Ison 2006). It does not show that engagement is a 'complex phenomena' (Tritter and McCallum 2006). A better way to view participation, it is argued, is as a complex relationship where through a process of social learning governance can emerge, where local people could have increasing input into decision making, with new kinds of roles and relationships (Keen et al. 2005, Tritter and McCallum 2006). Keen et al. (2005) particularly have offered explanations of different types of participation that can also be related to the present flood management participation practices in the coastal area of Suffolk.

Table 1.2 Types of participation (after Keen et al. 2005) and examples of where they have been observed in Suffolk. The document and location of example explanations are shown in bold.

Type of Participation	**Description**
Coercing	Power is exerted by a large scale organisation.
Informing	One way information No sharing of knowledge or decision making. **(Change in Policy of SMP1 for Orfordness by the EA. See Section 1.1)**
Consulting	Information is sought from different local groups. **(Environment Agency and Suffolk Coastal District Council in SES Strategy and SMP. See Sections 3.5.2 and 3.4.4)** The Government or its agency analyses outcomes and decides
Enticing	Different local groups share information **(Estuary planning Partnership for the Alde and Ore. See Section 3.5.1)** One group maintains power Incentives are given such as grants
Co-Learning	Knowledge is shared New understanding is formed Roles and responsibilities are defined Decision making is negotiated within constraints **(Potentially the Deben Estuary Partnership (DEP) See Chapter 3 Section 3.5.1 and Section 6.4)**
Co-Acting	People set their own agenda Plans are not imposed from outside Knowledge is shared Knowledge flows but learning outside the community not assured Power and decision making is in the hands of the initiators of the action **(The aim of the DEP)**

Table 1.2 is adapted from Keen et al. (2005) p16. (See Figure 1.1 for the location of these river estuaries). In both Table 1.1 and 1.2 the concept of participation is framed as stages, one referring more to the empowerment of the citizen (Arnstein 1969), and the other interpretation refers to ways of information and knowledge sharing and decision making (Keen et al. 2005). However these classifications of participation may not be sufficient to improve complex situations, which environmental problems often are. People may prefer to access a range of different forms of participation, at different times (Keen et al. 2005). In Table 1.2 different types of participation have been demonstrated by different groups, agencies, and government representatives at different times. There has been a move away from the Environment Agency proposing solutions to flood management problems by consultation, to enticing other groups to share power, as with the Estuary Planning Partnership of the Alde and Ore, and to also potentially engage in some co-learning with the Deben Estuary Partnership (Astley-Reid 2012). These partnerships are explained in greater detail in Section 3.5.1 and are a subject for further consideration in the conclusions to this research.

Keen et al. (2005) claim that resource management issues are often 'messes' that have high degrees of interdependency, complexity, uncertainty and multiple stakeholders. All of these attributes are found in coastal flood management, where there are many land uses and users, therefore many stakeholders, and a plethora of plans that could need integrating (see Chapter 3 and discussion of Figure 3.2). Plans proposed can be questioned by local people because of uncertainty about climate change and rising sea levels that could produce more flooding (see Section 2.2). If flooding is an accepted consequence there is a need to find acceptable solutions. As a result of the complexity of flood management, the challenge of improved participation is not going to be easy to achieve.

One way of overcoming some of the complexity and empowering local people is the development of local networks or partnerships. This process has been ongoing and could be a way to facilitate aspects of the 'Localism Act' of 2011, which aims to shift power back into the hands of individuals, communities and councils, for example through neighbourhood plans. The UK Government website states that "The time has come to disperse power more widely in Britain today" and see "a

radical shift in the balance of power and to decentralise power as far as possible" (UK Government 2011). The reality of this needs careful planning. It has been argued that local people need help to participate (Lorenzoni et al. 2007, Thomas 2011). Organisations with experience, for example the Coastal Partnerships discussed in Section, 3.4.1, could provide this help. Partnerships do exist between stakeholders in groups such as the Estuary Planning Partnership for the Alde and Ore (EPP) and Deben Estuary Partnership (DEP) but the challenge is to engage 'the public' and more local residents in sharing in new forms participation and make contributions to decision making.

In the past, examples of networks that are said to represent local people have been questioned if they do not act as 'guardians of public interest', or have legitimate authority to act (Rhodes 1997). Some local networks can be regarded as 'talking shops' and are credited with no power to make significant decisions, which has been said in the past of the Estuary Planning Partnership for the Alde and Ore (Steen 2003). There are also issues with the accountability of a networked partnership if it is not elected democratically. The exclusive controlling permissive powers (making decisions and giving permission for work to be carried out by themselves, other people or organisations), vested solely in the Environment Agency, explained by a document called 'Making Space for Water' for the control of flood defences, was such an issue (see Section 3.4.1). If responsibility for, and therefore control of the decision making lies solely in the hands of statutory agencies like the Environment Agency, with no consideration of how local people view the consequences of the decisions being made on their behalf, rejection of the decision can be the outcome (Smith 2003).

The conditions for allowing for increased empowerment of local people, as seen by Singh and Titi (1995) could improve participation in flood management. His conditions were fourfold. Firstly there is freedom and democracy and therefore the possibility of political participation. We are told we live in a democratic society and there are opportunities for people to get involved in decisions that affect them. Addressing problems with participation through opportunities for political means could improve involvement. The mechanisms for involvement are not always apparent to lay people, although some can take a political route, equally some

cannot. The possibility of engagement using political solutions to flood management is a consideration of this research. Secondly people must have access to the relevant information. Achieving this needs considerable effort to disseminate knowledge to as many people, in as many ways as possible. Ways of improving information provision and improved knowledge about flood management is a main aim of this research (see Section 1.3). Thirdly people must recognise the value of their relationship with the environment. The question of what is valued and motivates people to get involved needs consideration. Fourthly there is mutual self help among people working for a common good. Good, legitimate and creative governance is required along with some kind of transference of power to the community. Singh and Titi (1995) argued that the four conditions should form the basis of involvement and successful participation. In this research involvement is seen as the way to measure participation to assess ways to improve participation.

Work by O'Riordan and Vellinga re-interpreted in Kay and Alder (2005) have charted the history of public participation from the 1950s. They recognised five phases in its development, shown in Table 1.3, from low public participation in the 1970s to shared governance that may be emerging at the present time.

Table 1.3 Phases in public participation in coastal planning

Phase	Period	History of Public Participation
I	1950 - 1970	Public Participation is low
II	1970 - 1990	An increase in Public Participation
III	1990 - 2000	An emphasis on Public Participation
IV	2000 – 2010	Shared Governance emerging
V	Future	Integrated Tool Verified governance models Connected coastal management communities

(Kay and Alder 2005) p13

If, according to Kay and Alder (2005), a phase of shared governance (see Glossary) has emerged, that includes stakeholders and the public in decision making (Phase IV in Table 1.3), it would be of use to see if this were so, and gauge how much a local population is involved.

In other research by Dalton (2006) it was suggested that only a controversial issue will get people involved. One such issue is the ongoing failure to implement the 2003 EA Strategies along the Suffolk coast. As discussed, an important reason that could explain the lack of progress with the strategies could relate to ideas about participation in decision making, as proposed by Renn et al. (1995 p. 1). He said that to favour objective analysis (which could be in this case EA strategy proposals) over a consideration of the interests of those most affected, would mean that decisions lacked popular acceptance. If people feel coerced into a decision with little regard taken of the knowledge and information they bring to the table, the consequence could easily be failure of the participation process (Habermas 1987). Other reasons for a lack of success in implementing plans are different sorts of barriers that inhibit involvement. It is thought that identification of barriers could aid an understanding of why local people do not get involved in flood management issues, and would provide insights into improved ways to encourage participation.

1.2.2. Identifying barriers that inhibit involvement

Barriers to successful participation can be the feelings and competences that participants bring to the discussion. Research by Johnson and Chess (2006) demonstrated that some US Environmental Protection Agency (EPA) workers felt that some of the reasons for public participation failure in decisions were brought about by a lack of understanding and emotional rather than rational responses by the public. In addition a lack of commitment by some engineers who could not communicate their ideas and needed to spend more time on informing people of their work.

Dalton (2006) also identified problems with non-participation that were caused by negative feelings about planners and a general lack of awareness of any public participation process. She concluded from her research, that the present public participation processes are not satisfactory. There is a need to build relationships so that people can have influence over final decisions. The public needs to learn not just about scientific and technical views but also the views of other people. It would be necessary to take into account that different people have different learning styles and therefore their access to information would be different. People could therefore have

different ways in which they would be prepared to participate. This is a premise of this research. Dalton (2006) also proposed that when people did participate, they did not like or felt uneasy when conflict situations developed. People who were not knowledgeable also found it hard to understand and therefore engage with any process of participation. Planners could have a negative view about engagement with the public and were more concerned about the time (and cost) spent on consultation. She felt that these barriers could be overcome if the public could have greater influence over the final decision and in doing so:

- Learn about the views of others
- Integrate science into public participation
- Consider different learning styles that could make input into a decision more accessible
- Working relationships could be promoted

Attention to these recommendations would aid a better understanding of participants' views on a participation process and will help managers create a more appealing process (Dalton 2006). This is the approach that this research is taking. The research plans to identify barriers and preferences that local people have with participatory processes, to aid an improved process.

To help plan a better process, barriers and problems with participation need to be recognised. Work by Ajzen in the early 1990s on planned behaviour, Blake in the late 1990s on the relationship between values and action and Lorenzoni et al. in 2007 on barriers to engaging with climate change, have all highlighted barriers that need to be considered to understand why the public does not engage with environmental issues (see Table 1.4). Ajzen (1991) identified barriers to behaviour as issues with time, money, skills and the ability to co-operate with others. People will also have different attitudes, motivation, ability, and difficulty with data interpretation, beliefs, social pressures, and past experience that can also affect behaviour and willingness to engage.

Blake (1999) concluded that participation depended on a spectrum from environmental concern to environmental action, where barriers of individuality, responsibility and practicality have to be overcome. The barriers he recognised were

the individual barriers of laziness and lack of interest, the responsibility barriers of lack of efficacy, and trust and ownership of property. Practical barriers included lack of time, money, information, encouragement, facilities and in some instances being physically unable to participate (Blake 1999). Blake recognised that barriers to action vary widely between different communities and will also vary due to the nature of the environmental issue. He feels there is a need to include not just stakeholders, but also other members of the local population. Blake (1999) felt that making assumptions about who should be included should not be undertaken. This could lead to a lack of participation.

Table 1.4 Examples of barriers to participation identified by other research

Researcher	**Individual Barriers**	**Responsibility Barriers**	**Practical Barriers**	**Social Barriers**
Ajzen (1991)	Skills		Lack of: Time and money	Co-operation with others
Blake (1999)	Laziness Lack of interest	Lack of trust No need Lacking efficacy No property	Lack of: Time Money Information Encouragement Facilities Physically unable	
Lorenzoni et al. (2007)	Lacking knowledge Uncertainty Distrust Blame others Distant threat Reluctance to change lifestyle Fatalism			Lack of: Political action Business action Industry action Free rider effect Social norms Social expectations Initiatives

Research carried out by Lorenzoni et al. (2007) studied people's attitudes to carbon reduction lifestyles brought about by climate change. The case study areas were in Norwich, England; Rome, Italy; and in the counties of Somerset and Hampshire in Southern England. Two main categories of barriers were identified that stopped people engaging with climate change. These were individual barriers and social

barriers. Examples of individual barriers were: a lack of knowledge; feelings of uncertainty and distrust, and a tendency to blame others and feel threatened. There were feelings of fatalism, of being an insignificant drop in the ocean and a tendency not to want to change lifestyles. Social barriers included a lack of political, business or industry action, a free rider effect and an adherence to social norms and expectations. Although their research addressed issues with climate change, the sort of barriers people experience to any change could produce similar problems. This research will also investigate barriers to participation in flood management for members of the public.

Barriers can cause a lack of participation and exchange of knowledge that can mean that there is more likelihood of political systems becoming unstable due to communication breaking down between those concerned (Renn 1995). This can result in protest reaction such as that seen on the beach at Walberswick (Figure 1.2). Some kind of forum is needed that can enhance responsiveness, be more effective in enabling decisions to be made and help to reduce and/or resolve any potential conflict before it occurs (Renn 1995). Webler (1995) also felt that public participation is a sort of job training for citizens and can be an educational experience, but this will take time, and possibly a commitment to a lengthy process of engagement. The problem that besets managers is often how to engage effectively. The improvement of the process of participation needs consideration.

1.2.3. Planning for a better process of participation

The premise that decisions are better for including all views is the basis for thinking that participation is intrinsically a good thing (Cleaver 2001). Including all views is not going to be easy to achieve. Cleaver (2001) also stressed the need to get techniques for participation right and to avoid power politics. The opportunity for personal involvement can improve and change people's lives and achieve better project outcomes. Cleaver suggested there were considerable advantages for the competence of interchanges if they are formalised and devised by institutions, therefore agencies have to take the responsibility to engage. This 'top down' approach means identifying a community to engage with, that has representatives of most if not all views in a location. User groups will need to engage with a process

that has identified boundaries, clear rules and sanctions and mechanisms to resolve conflict. Although formal procedures that are led from the top down can aid transparency, it must also be recognised that there could be important factors left out if the historical or social context is overlooked, and a process could therefore become over simplistic (Cleaver 2001). There are therefore interactions, outside the formal structure that need a voice. If procedures are too formulaic they are in danger of overlooking respect, trust and friendship needed for success (Hailey 2001). Problems that have developed in a local area can be due to the lack of relationship building between organisations and local people, which takes time and effort to develop (Steen 2003). Good relationships can produce more participatory, non-confrontational and successful outcomes.

'Bottom up' approaches can be successful. A community led initiative in Scotland called 'Initiative at the Edge' (Barker 2005) developed innovative methods such as youth drop-in centres and cafes, community centre and outdoor centre involvement in engagement and was reported to have a number of important achievements. These included an increase in community interest and involvement in local developments. Some communities were also said to have made significant progress with regard to strategic planning and management. It could be that by using these more innovative engagement strategies, or possibly ones that people say they prefer more citizens could be included in planning strategies.

Consideration of methods for participation is an issue that is beginning to be addressed but there is little research into which methods are preferred by a local population and which are found satisfactory for the purpose. Preferences for different methods are sought, from samples of the people of Orford engaged in this research. A recommendation by Renn (1995) is not necessarily to focus on the more used methods of public hearings and enquiries, social surveys, scientific advisory groups and referenda but to focus on more participatory methods that include citizen advisory councils', citizens' panels, Citizens' juries, citizens' initiatives, Negotiated rule making, mediation and compensation and benefit sharing.

An inspiration for this research was the work of Webler and Tuler (2006) in the US, who sought to identify relationships between environment agencies and individuals

and groups of local people. Their research proposed suggestions for a good participatory process that should include:

- A process that reached out to all
- Provision of information that should be shared openly
- Meaningful engagement with people
- A way to provide for multiple intent positions to be satisfied
- A need to have a regard to power and promote a trust in issues
- To state definitions of outcomes and goals

These are not collectively easy outcomes to achieve or measure however, they are the result of extensive research into different types of participation that recognised four relationships between environmental agencies in the US and stakeholders. The first was a 'science centred' stakeholder consultation which is agency dominated. The emphasis here is on making decisions for action rather than for advice. Strong leadership, good information and analysis are sought. Webler and Tuler (2006) thought this relationship emphasised the production of practical outcomes through science and had a focus that made clear progress on a problem. However it did not improve trust or have any social capital. The implication of this type of participation is that an environment agency makes the decisions, and because of not taking people with them through the decision making process, there is resultant lack of trust, rejection or development of conflict situations (an example is the result of the first estuarine strategy for Suffolk in 2004 and Blyth Estuary plan rejection in 2008).

A second relationship was an 'egalitarian deliberation' which could aim to empower citizens. In this process the needs are: full access to the process by participants; access to all information; deliberation is to be encouraged; and power given to participants to shape the decision and outcome. Webler and Tuler (2006) concluded that this process cared little for the actual progress of the problem because it was too focused on power relations. The US environmental agencies had authority but also gave and received information (both ways) but they also controlled the agenda and process. However, they were prepared to allow decision making from those

involved. (This relationship has difficult aims to achieve, but could be what deliberations between agencies and local people should aspire to).

The third relationship was that of 'efficient co-operation' where participants give recommendations to environmental agencies. For this to be effective there needs to be: consensus building; building of trust and collaborative relationships; a common language and listening; and feedback to the agency. In this relationship the agency is the leader on decisions and there is no power equality. However there are opportunities to create trust due to the emphasis on co-operation. The strong leadership of the agency needs to be accepted and participants need to 'behave properly'. (An example could be the Suffolk Coastal District Council 'Futures' project and possibilities for the newly reforming Alde and Ore Estuary Partnership see Section 3.5.1).

A fourth relationship is an ends-orientated process named 'informed collaboration'. Criteria needed for this process are, high quality information, trust between the community and the environment agency, and strong leadership. This process is seen to have potential to meet the agency's objectives because of the trust achieved through collaboration in meaningful outreach and interaction. The emphasis is again on 'responsible' individual behaviour (an example could be the Deben Estuary Partnership (DEP) project see Section 3.5.1).

A conclusion of Webler and Tuler's research has led the direction of this research. They stated that

"Knowing what people think about participation and knowing what people want from public participation is essential in crafting a legitimate and effective process and delivering a programme that is viewed as meaningful and successful" (Webler and Tuler 2006 p. 699)

and

"*Further research would be useful to better understand who prefers particular kinds of processes and outcomes and in which contexts, as well as how individuals' preferences may vary by context and how preferences for process may be related to preferences for and satisfaction with outcomes"*(Weber and Tuler 2006 p.719).

These conclusions have encapsulated an approach where it may be better to ask people how they think they would like to be involved in flood management rather than have it imposed upon them. Similar conclusions have been drawn by Chilvers (2009 p.413), who thought that "Without the generation of detailed empirical evidence through systematic evaluation and critical study there is little to stop the onset of oppressive and technocratic forms of participation, nor the dogmatic resistance of participatory practices, that have truly empowering and transformative potential." It could therefore be interpreted that there is a need for empirical evidence, which this study seeks, and a willingness for organisations and locals to co-operate in practices that allow for some form of joint decision making.

For reasons discussed in this chapter local people will need to be included in flood management decisions, otherwise decisions could be considered undemocratic, with unworkable consequences. This requires national and local government and their agencies to be more proactive in including more of the public in their deliberations and decisions. There is a need not just for 'top down' strategies but opportunities made for 'bottom up' planning and local responses to improve not just the amount of participation but also its effectiveness.

It is understood that just 'top down' or 'bottom up' approaches have limitations. 'Top down' procedures can miss out on social elements, and in the past have been seen to not take into account environmental, economic and social considerations (for example the criticism of the EA Suffolk Estuary Strategy of 2004, see Section 1.1 and 3.5.2). 'Bottom up' methods can be tokenistic, based on poor knowledge, lack of finance and understanding of community (Smith 2008a). 'Bottom up' strategies alone can also lack 'authenticity' and power to act, especially as lack of resources can be a feature of this approach (McKenna and Cooper 2006). There are also criticisms that 'bottom up' strategies can have limited democratic accountability and be ineffective and unsustainable (Ballinger et al. 2010). A combination or integration of the two strategies may be the most effective, and will be investigated in this research. It is also proposed that there has been little research into the preferences for participation from local people, and hence the need for this research.

1.3 The aims and objectives of this thesis

This chapter has highlighted some of the issues, and proposed some justification for improvement in public participation in coastal flood planning. There is a need for local experience to be included and empowerment issues to be addressed. To improve empowerment there needs to be a willingness by managing authorities to allow lay people, stakeholders and the public to have some influence, from understanding the issues to helping to determine decisions. In this research the approach is encapsulated in aims to:

1. Observe and report ways that administering agencies and authorities, most notably the Environment Agency and Local Government have planned and are planning their engagement strategies for flood management in Suffolk and particularly the Alde and Ore and Deben Estuaries (See Figure 1.1).
2. Carry out research using the village of Orford as a case study with specific objectives to:

(i) measure knowledge about flood management
(ii) measure the amount of involvement in flood management
(iii) explore any relationship between knowledge and involvement
(iv) explore any similarities and differences between people with different levels of knowledge and involvement
(v) determine the barriers affecting the participation of people in flood management
(vi) assess any problems and preferences that people may have for present processes
(vii) propose recommendations from the study that could facilitate an improved process of public participation in flood management
(viii) identify future research needs based on the results of this study.

Observations of Environment Agency and local government engagement plans have been possible through work carried out for two Estuary Planning Partnerships in Suffolk from 2003 to 2013 that are detailed in Chapter 3. Involvement with the Estuary Planning Partnership for the Alde and Ore (EPP, now AOEP) and Deben Estuary Partnership (DEP) has included attending and organising meetings, producing minutes and personal engagement with stakeholders, Environment

Agency Officers and the public. The background to the research and specific investigations with the people of Orford is described in the following chapters.

Chapter 2 outlines some of the knowledge of coastal flooding that the local people of Orford may need to have to understand the changes that cause flooding, or occur due to flooding. Management strategies and funding to alleviate flood risk, and their application to flood planning also need to be understood if informed decisions about strategy options are to be incorporated into the views of local people. The knowledge proposed in this chapter is the basis for designing and administering a questionnaire. This was carried out in 2008 to assess the levels of understanding about flood management in the local population of Orford.

Chapter 3 aims to outline the changes that have occurred in coastal management that has had implications for flood defence and put into context the knowledge that local people might need to have to understand planning aspects of flood management. It is not expected that local people will have knowledge of the history of policy, but the chapter will explain how policy has been derived. However there should be an understanding of who determines present policy, and who now enacts policy decisions. If local people are going to engage with flood management decisions they will need to know who to approach, engage and become involved with. It is also an advantage for them to understand the different strategies that affect decisions in flood management. The chapter concludes with an explanation of how the research questions were derived.

Chapter 4 describes the methodology of the research. The background to changes in the coastline and who manages the coastline described in Chapters 2 and 3 form the baseline knowledge to assess a local population for their current knowledge and involvement. The assessment of this will be by questionnaire followed by interviews in and Q methodology in 2009 and 2010 and a workshop in 2011 to explore reasons for, problems with and solutions for participation in flood management.

Chapter 5 presents the analyses of the results related to ways of improving involvement in flood management.

Chapter 6 presents the conclusions and recommendations for further research.

Chapter 2 Knowledge of coastal change

2.1. Introduction

A research aim of this investigation, see Section 1.3, Aim 2 (i), is to assess the knowledge of a local population for their understanding of flood management. One of the flood management changes that coastal populations are being asked to accept is the replacement of farmland with salt marsh. This is also a consequence of the problem identified at the start of this research, which was a change from a 'hold the line' policy of sea defence to one that was recommending 'managed realignment'. Change in flood management strategy has also been seen to cause problems in other areas along the east coast of East Anglia and the North Sea coastline of Holland, and has been reported by Guthrie et al. 2003; Winn 2003; Environment Agency 2004; Barbrook 2006; Milligan et al. 2006; Guthrie 2007; and Duenk 2009. It is argued that if local populations understand changes they are more likely to be able to become involved in informed decisions (Berkes 2000; ODPM 2004a; Bleese 2011). This chapter will introduce the possible changes, both natural and man-made, that could be caused by flooding from the sea along the coastline of much of the British Isles, but will particularly focus on East Anglia, where some of the effects can be seen to be most marked. The aspects of coastal change discussed in this chapter will form the basis of finding out the levels of knowledge of coastal flood management of the people who live in the village of Orford, Suffolk and aid the construction of a questionnaire to answer research questions. For a summary of the research questions see p38, and for a more in depth explanation of how the research questions were derived see Section 3.6.

Knowledge of climate change could be fundamental in the acceptance or otherwise of changes along coastlines. The estuarine coastline of East Anglia is particularly vulnerable to flooding from the sea. Flooding could increase due to the effects of climate change. Climate change could result in rising sea levels and less predictable, more extreme weather conditions. These changes will have implications for how the coastline is to be protected and managed. The effects of climate change on coastal flooding are discussed in Section 2.2. Section 2.3 introduces those responsible for coastal flood management and Section 2.4 further explains some of the strategies for flood protection. Any decisions will have cost implications, especially with

allocation of funds from national government, which has changed the rules for the distribution of money for flood protection. Funding issues are therefore outlined in Section 2.5.

2.2. Changes due to sea level rise and climate change

An understanding and uncertainty of the facts about sea level rise could be an important reason for people's involvement in coastal planning. If people accept that sea level rise is a flood risk, especially if they live in an area of high risk, they may be more likely to participate in planning for flood management. If they are uncertain about sea level rise and therefore the need for flood planning, they may not feel the need to become involved.

It is thought by many scientists that a major effect from climate change to the coastline is the possibility of sea level rise. Sea level rise is considered to be a worldwide concern for many low lying coastal areas (IPCC 1995). So much so that there are permanent monitoring stations, 1400 worldwide, and a service for assessing mean sea level fluctuations at Birkenhead in the UK (Masselink and Hughes 2003). It has been calculated that the average rate of eustatic sea level rise caused by a change in the volume of oceanic water, was between 1 and 2mm a year over the 20th Century compared with previous rises of 0.1 and 0.2mm per year in the previous two hundred years. The current rate is 3mm a year (UKCP 2009). It is generally accepted that the reason is due to an in increasing global temperature of between 0.3°C and 0.6°C over the last 100 years (Masselink and Hughes 2003).

Sea level rise is due to the thermal expansion of ocean water and the melting of land bound ice. Current global mean sea level rise predictions in 2013 for the period from 2081 to 2100 state that sea level is likely to rise at a rate of 7-15mm (83.3-178.5cms) a year (IPCC 2013). In Table 2.1 the predictions also show a considerable variation, as in the 2081 to 2100 period, in global sea levels. In this case it was predicted from 9cm to 69cm by the 2080s. The range is great because there is general uncertainty about the amount of CO_2 emissions that will contribute to global warming. It is therefore thought that thermal expansion from the warming of layers of ocean will continue to have an influence on sea level rise even if CO_2emissions stabilise. To

achieve any appreciable reduction in global warming would take a lowering of global CO_2 emissions by some 60%, which is not expected with present emission commitments. Worst case scenarios of global temperatures rising from 3ºC to 8ºC in the next 1000 years could see sea level rises up to 6 metres (Hulme et al. 2002). Serious coastal flooding would result.

Work by a consortium of researchers for the UK Climate Impact Programme (UKCIP) over the last ten years has reported on climate change scenarios for the UK from 2002 (Hulme et al. 2002) Work is continuing to date. Hulme and co workers reporting in 2002 predicted much higher increases in global warming and sea level rises for the future. Their UK predictions in 2002 are shown in Table 2.1. The figures demonstrate increases in sea level, and although the magnitude of predictions varies with different levels of carbon dioxide emissions, it can be seen that the trend is an increase in sea levels into the future.

Table 2.1 Global Sea Level changes (cm), relative to 1961 – 1990 averages for four UKCIP Scenarios (figures calculated using Hadley Cell Model and figures in brackets represent IPCC ranges in 2002)

UKCIP02 Scenario	2020s (cm)	2050s (cm)	2080s (cm)
Low emissions	6 (4-14)	14 (7-30)	23 (9-48)
Medium to Low emissions	7 (4-14)	15 (7-32)	26 (11-54)
Medium to High emissions	6 (4-14)	15 (8-32)	30 (13-59)
High emissions	7 (4-14)	18 (9-36)	36 (16-69)

Source: Hulme et al. (2002)

As well as differences due to emission levels there are additional reasons for effects on sea level around the coastline of the UK. Some regional variation is due to land movements by isostatic readjustment, which is the heightening of the land level due to removal of the weight of ice as a consequence of de-glaciation following the last ice age, in the north and west of the UK. This has resulted in consequential tilting

and lowering of the land level in the south east of the UK. Other movements have resulted from localised sediment consolidation often due to the removal of groundwater (Shennan and Horton 2002). Both these factors have increased the effect in the South East, London and Eastern Region of the UK.

Figure 2.1 and Table 2.2 show both variability around the coastline, and between the sets of figures, but also highlight the relatively high subsidence of the south eastern coastal areas of the British Isles at -1.5, -1.9 and -2.0cm per year (Figure 2.1) and a relative decrease in land height due to rates of subsidence of -0.9, -1.5 -1.2cm per year (Table 2.2). These figures emphasise the increased vulnerability due to sea level rise of the south eastern coastal area of the UK, and this estuarine area of the country.

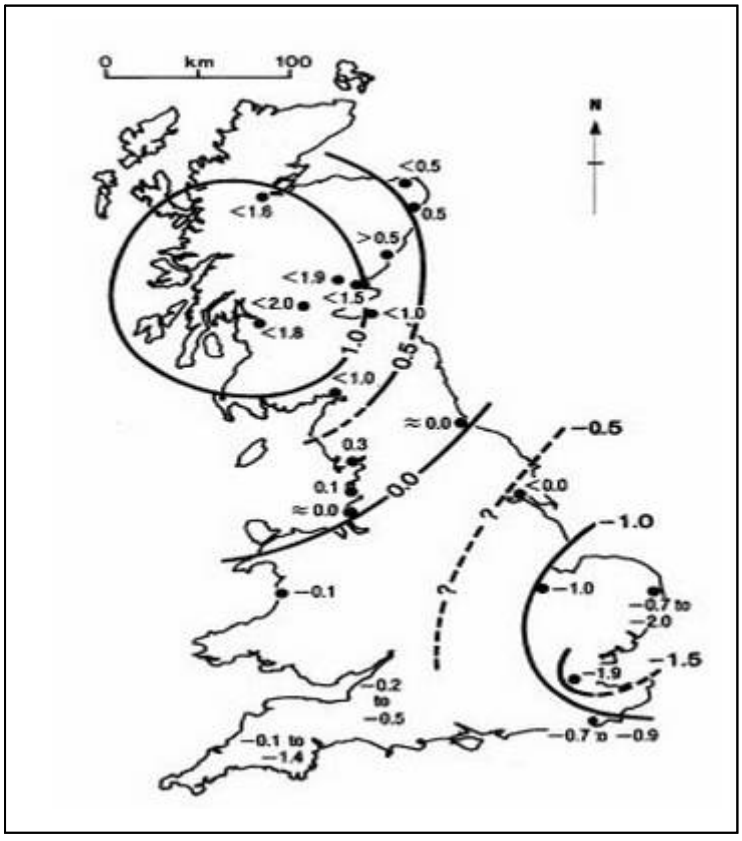


Figure 2.1 Map to show land changes due to subsidence and uplift mm/yr (Note the higher rates of subsidence for Eastern England). Source: Shennan and Horton, 2002

Table 2.2 Rates of vertical land movement due to isostatic readjustment

Regions	Subsidence (+ve) or (-ve) (mm/yr)
NE Scotland	+0.7
SE Scotland	+0.8
NE England	+0.3
Yorkshire	-0.5
East Midlands	-1.0
Eastern England	**-1.2**
London	**-1.5**
SE England	**-0.9**
SW England	-0.6
Wales	-0.2
Northern Ireland	n/a
NW England	+0.2
SW Scotland	+1.0
NW Scotland	+0.9
Orkney and Shetland	n/a

Source: UPCIP02 Report. Hulme et al. (2002).

A more recent research report in 2009 (UKCP 2009) recognised the same trend of sea level rise as referred to in Table 2.1, and confirmed predicted increases in sea level. However it is important to note that predictions have been modified. If the east coast location of London (Table 2.3) is taken as an example over the same three time periods, sea level rise shows a similar rise. However there has been a change in the presentation of the figures. The change is that sea level rises are now shown in Table 2.3 as a single central estimate figure.

Table 2.3 Central estimates for base line date 2000, and 2020, 2050 and 2080 for relative sea level changes for London in cm per year

UKCP09 Scenario	2000 (cm)	2020 (cm)	2050 (cm)	2080 (cm)
Low emissions	2.5	8.2	18.4	30.5
Medium emissions	2.9	9.7	21.8	36.3
High emissions	3.5	11.5	25.8	43.3

Source UKCIP (2009).

The reason for this change was to try to address the perception that there is a degree of scientific uncertainty in the predictions (UKCP 2009). Scientific uncertainty is a fact that scientists recognise, but can be a problem for the lay public. It was thought that non-scientific populations may see data that are not more defined as not 'reliable' or 'robust' (Zehr 2000; Kay and Alder 2005).

The question of scientific uncertainty is an issue that needs investigating because local people may not accept there is need for involvement or action in coastal flood management unless they believe there is a risk to themselves, others, or the environment. Amongst many scientists (IPCC 2007), there are few or decreasing numbers of questions as to the fact of global warming and its effect on sea level rise, although there is debate about its degree, (see Tables 2.1. and 2.3) (IPCCb 2007). However in the minds of local people there could still be uncertainty about both the facts of global warming and increased incidence of flooding caused by sea level rise and increased storminess (Whitmarsh 2008). Some people could favour the explanation of warming temperatures due to interglacial theory (IPCCb 2007), and question the ability of those responsible to plan for any changes and take uncertainties about sea level rise into account (Johnston and Soulsby 2006; Greenwell 2007). There also appears to be an issue about what changes and planning options are acceptable when proposed by Shoreline Management Plans and Estuarine Strategies, and a general problem with the public not understanding or trusting the science that helps to construct the policies (Johnston and Soulsby 2006). A recommended aim given by a Defra representative at a conference was that they should reduce the amount of uncertainty and insecurity people have (Harries 2007).

It would seem that to enable greater acceptance of flood information, the information needs to be trusted and seen as accurate.

Other factors that may contribute to making flood predictions more realistic to people living along the east coast is the fact that this coast is more vulnerable to flooding because of storm surges and large waves. Storm surges are a temporary rise in sea level above the astronomical tide. They are caused by strong winds associated with intense low pressure systems. They occur in shallow water and their height will increase due to the tunnelling effect of the coastline, a feature of the narrow southern North Sea. Due to the increase in water height they are particularly damaging at high water. Usually flooding is only prevented by effective sea defences.

Storm surges accompanied by high tides are potentially more damaging than sea level rise. However there is again uncertainty from modelling predictions of weather and tides as to when these phenomena occur and their magnitude (Hulme et al. 2002). It is when all three (storm surges in the North Sea, strong northerly winds and high tides) occur together that the worst effects of flooding have been felt on the east coast, as in the 1953 flood (Waverley 1953). The highest surge experienced along the east coast occurred in these floods and at Aldeburgh in Suffolk in 1953 it was 3.78 metres above Ordnance Datum. There have been further surges in the 1990s. At Lowestoft in Suffolk there were six tides above 2.25m from 1990 to 1997 and since then only three tides above 2 metres until 2007 (Pye 2005).

In 2007 the same scenario was anticipated that had occurred in 1953. High tides, the biggest storm surge in 50 years and strong north to north westerly winds were predicted by the Metrological Office (2007). On 9th November the actual recorded levels came within 10cm of overtopping most of the sea and river walls along the coast of Norfolk and Suffolk. There was evidence of some overtopping of river walls in Suffolk and it could have been worse but for the holding of the post-1953 walls. On this occasion a surge of 3 metres had been predicted. The actual height of the surge was 1.7m less than the Environment Agency had anticipated. This fact, compounded by a reduced offshore wind and the surge not coinciding with the high tide, meant serious flooding was averted (Steen 2008). The 2007 potential flood did however keep the threat of flooding in the minds of people all along the east coast.

There is a heightened awareness of flood risk in an area if there is a history of flooding (Harvatt 2005). This has been observed in research around the town of Aldeburgh, on the Suffolk coast (see Figure 1). Here an awareness of sea flooding and experience or knowledge of the 1953 storm event resulted in 50% of the people being aware of the flood risk map, prepared by the Environment Agency and available by post code online, compared with 25% in other areas studied (Harvatt 2005; Harvatt et al. 2010). Another, widely held view of flooding is that any flooding should be avoided and land should not be lost to the sea (Myatt et al. 2003; Ledoux et al. 2005).

In comparison with long-term erosional and depositional processes, flood events occur in the short-term and can have devastating consequences and generate a perception of high risk. However they may not occur very often. In another survey of flooding experience on the east coast of England in the Blackwater Estuary, only three of the 91 respondents had any memory of inundation (Myatt et al. 2003a). In the event that personal experiences are limited, it could be argued that knowledge of the effects of flooding will have to be gained from alternative sources. There is therefore, a need for an understanding of coastal processes that can make coastal flood planning more acceptable to those affected in a local population, and local users of the area (King 1999). The responsibility for producing this understanding could be said to reside with those who ultimately make decisions about flood planning.

2.3. Responsibility for coastal flood planning

The responsibility for coastal flood planning has been in the past, and still is, a complex issue. Essentially flood planning in England is led and carried out by the Environment Agency (directed by Defra), and local councils, who also receive guidance from central government. Currently 71% of all flood defences are directly the permissive responsibility (see glossary), of the Environment Agency, therefore 29% are the responsibility of others, such as local authorities and land owners. Although a proportion of the responsibility for flood management is in private hands, the Environment Agency usually has to be consulted for permission to carry out any

work on the defences, or for any changes. It can make local work difficult, as guidance given from Government to the Environment Agency is not prescriptive and could become less so with more decisions involving local partnerships (Hardiman 2011). This means that local permissions given by the Environment Agency could vary between and within regional estuary areas (Harries and Penning-Rowsell 2011 p.191). Negotiations between the Environment Agency and partnerships and private owners will increase and will also need to involve more local people. Greater integration of those affected by flood management decisions is needed, for the reasons discussed in Chapter 1.

One response to integrate plans and encourage agencies and organisations to work together is the proposal for integrated coastal zone management (ICZM). A detailed discussion of agencies, organisations, policies and plans are described in Chapter 3, but it is suggested by many that ICZM could solve the problems of integration in coastal planning and inclusion of the local population in flood planning (Shipman and Stojanovic 2007; Stojanovic and Ballinger 2009). It is important that it is clear to all involved where responsibility for planning and, importantly, decision making, lies. In 2003 little was understood about the changes to Shoreline Management Plan 1 (SMP1) that caused the adverse local reaction described in Chapter 1. The recommendations of SMP 1 and 11 are described in more detail in Section 3.4.4 and are specifically for the coastal erosion and flood planning, as opposed to Estuary Management Plans that affect flood planning in tidal estuaries, such as in this study. How much local people understand about flood management responsibilities and strategies are also an aim of this research (Aim 2 (i)).

2.4. Changes in coastal flood defence strategies

Natural coastal processes are found in an area where the land meets the sea and is a borderline in constant natural transition. The two most important processes that affect this transition zone are the effects of erosion and deposition. In general these processes would create a balance along the coast of areas being eroded, and areas accepting the material, in deposition. Left with no interference from man, features such as cliffs and spits and habitats such a mudflat, salt marsh and sand or shingle beaches would develop, be moved and redevelop in different areas over periods of

time, usually longer than the lifetime of humans (Harvatt 2005). However the coastline is often not left to develop naturally and there have been locations along the coastline where management has been the solution to erosion and potential flooding. Over time opinions and therefore strategies of how the coastline should be managed have changed. From the 1930s to early 1950s, sea wall building, reclaiming land for farmland, draining salt marsh and keeping the sea out was the preferred strategy (Pettit 1999). The 1953 floods on the east coast showed the vulnerability of the coastal defences and the subsequent policy was again to strengthen the defences and build up the sea and river walls to 'hold the line', that is to build defences to keep the sea out. During the 1960s there were advances in the understanding of coastal processes that meant, where possible, soft defences such as beach replenishment were used. These defences have become increasingly favoured over the expansion of the sea wall, groyne and other hard defences. There was an increasing acceptance of a need to understand more about natural processes and to work with nature (Pettit 1999). Current thoughts are increasingly of the view that the advantages of 'controlled flooding' or the results of 'managed realignment' should be considered. The removal of existing fixed defences will have the effect of disrupting the flow of sediments and disturbing present ecological processes through flooding (Brown 2006), but could also produce the advantages brought about by the formation of increased areas of salt marsh.

Myatt et al. (2003a) identified considerable potential gains for habitats and the economy by increasing areas of salt marsh. For example, salt marsh increases the nursery feeding grounds for fish, provides nutrients for oysters and fish bait worms, gives over wintering and summer feeding ground for birds, acts as a natural water quality control that absorbs and stores pollutants, and provides an environment for wildfowling. Economically an income can be gained from people using the marshes, especially farmers, and it can decrease flood defence costs because hard defences are no longer needed or need to be maintained (Myatt et al. 2003). An important and current decision has to be made as to whether coastal and river defences in some areas will have to be upgraded, or alternative land management policies considered, like the development of salt marsh (Brown 2006).

Despite the advantages of salt marsh, the maintenance and replacement of failing sea and river defences is often expected (Ledoux et al. 2005; O'Riordan et al. 2005; Thomas 2011). A change in the emphasis of flood planning policy has also affected the way decisions are being made. In the past, from 1993 to 2003, the emphasis was on 'Flood Defence' then from 2003 a change to 'Flood Risk Assessment' has had implications for different attitudes to flood management.

The attitude of the planners is that they must respond to government policy. Planners are therefore increasingly considering not just defence but also reviewing other options, such as managed realignment, while local people may still want a 'hold the line' defence. As stated, coastal populations can display different attitudes and be resistant to change. Local communities are being given options that include 'hold the line', 'managed realignment', 'advance the line', 'do nothing', 'limited intervention' or 'no-active intervention'. Explanations of these options that are recommended from Shoreline Management Plans have been produced by the Environment Agency. The explanation of these flood management strategy options are:-

- **'hold the line'** – Which means ongoing maintenance of the flood defences in their existing locations. The standard of protection from flooding should be sustained and increased by raising or replacing the existing defences.
- **'managed realignment'** – Which is defined as placing new flood defences landward (behind) the existing ones. Often assets immediately behind the defences restrict the opportunity for landward realignment. In some cases, this process may also provide the potential opportunity to create habitat in front of the new defences.
- **'advance the line'** – Which means placing new flood defences in front of existing ones. Generally this is not considered to be practical along a river frontage. Sometimes a barrage is considered, that is a structure forming a permanent limit to the tides that should create a freshwater river upstream in an estuary. A barrier is a temporary structure deployed during extreme tidal conditions to reduce the risk of flooding upstream.

- **'do nothing'** – That allows the existing flood defences to fall into a state of disrepair, with no further maintenance. Eventually the defences would fail and the land behind them would be no longer protected from flooding.

(Environment Agency 2004)

Knowledge about flood management strategy options will be assessed in a questionnaire along with other flood management policies local people may be aware of. Each of the flood management strategies will have required a risk assessment. A considered use of the work of the UK Climate Change Scenario Group is for regional coast and flood defence stakeholders to 'develop a risk assessment for a coastal cell or river catchment' (Hulme et al. 2002). This recommendation is being adopted (2011/2013) by the Environment Agency (EA) in their plans for their Suffolk Coast Flood Defence Strategy.

EA planning within flood cells has produced an issue between having a strategy for a whole coast or estuary and addressing the problems within a single part of the coast or estuary, designated as a flood cell. The problem is that different cells may have different solutions and these will have to be assimilated into an overarching plan. The solutions are going to vary between cells. In a plan in 2011 for the Alde and Ore area of the Suffolk coast only two of the fourteen cells in the estuary will attract full government funding (see explanation in Section 3.5.2). Funding is increasingly going to be an important issue for local people. The next section introduces some of the changes in funding that will affect flood management decisions along the coast of East Anglia.

2.5. Changes in funding

It has been felt by some local people and estuary managers, that the Environment Agency have for some time been 'walking away from river and sea wall maintenance' (Andren 2004; Wilkinson 2007). Increasing expenditure was and still is needed to maintain current coastal and estuary flood defences without any increase in protection. From 2004 a report by the Anglian Coastal Authorities Group on the first North Norfolk SMP felt that the expenditure on sea and river walls has to be

"weighed up against alternative uses for government money; for example on education, health or other social benefits" (NNDC 2004 p.12). However the conclusions of the report also recognised that attitudes may change and people may demand that more money is spent on coastal protection. Pressure is however more likely to be exerted in areas of higher population where "more properties can be protected per million pound of investment". In contrast rural areas, such as the Suffolk coast with lower densities of people and property will be "more affected by changing financial constraints" especially with regard to priority decisions for funds from national sources (NNDC 2004 p.12).

Funding for flood defences along rivers and coasts, especially in rural areas, was and still is an issue. There is no obligation to build or maintain sea defences because all powers are permissive (see Glossary). There is and remains, no provision for compensation from public funds to persons whose property or land are effected by erosion or flooding (UK Parliament 1998). However land can be bought from landowners for sea defences. For example farmers can form consortia with the Environment Agency, local councils and other partners, to fund schemes. In the past there have been examples where the Environment Agency has funded Managed Realignment Schemes, such as the Wallasea Island Scheme in Essex (Maunsell 2006). More recent proposals are encouraging more funding from local sources. An example of this type of funding is explained more fully in Section 3.5.2.

Large scale schemes in the past could be funded directly with block grants. Block grants allowed decisions on spending to be made directly by the Environment Agency and Regional Flood Defence Authorities, now Regional Flood Coastal Committees, rather than grant-in-aid, where schemes had to be approved by Defra (Defra 2005). Defra approval had to be sought by the Environment Agency so that they were able to produce their strategies and fulfil the criteria of a 'priority scoring system' to gain funding for flood and coastal defence projects, if funding is available (Defra 2005). Other responsibilities for managing the coastline can be taken by the owners of land along the coastline. These range from large landowners, like the National Trust and farmers, to industrial installations and transport lines. In the main these landowners fund and maintain their own solutions to coastal erosion and flood management, but they are constrained by the planning regulations administered by

local government and the permissive powers of the Environment Agency (Lohoar 2010). Funding for the majority of work by the Environment Agency or local government coastal work comes directly from Defra in the form of Grant in Aid, which was introduced for the Environment Agency on 1st April 2004. Funding arrangements were reviewed in 2007, but have undergone more changes to date.
In 2009/2010 Grant in Aid (GIA) schemes supporting projects in East Anglia (Norfolk, Suffolk and Essex), and funded by Defra, amounted to £42.3m. This was a large reduction from the previous year's expenditure of £70m, in 2008/2009. This money is for capital schemes and usually funds large projects. Other non-government income for flood defences for 2009/2010 came from Internal Drainage Boards (IDB) which amounted to £0.3m, local levies from county councils gathered through Regional Flood Coastal Committees of £2.1m and general drainage charges on landowners outside the IDB of £1.4m (Andren 2010). Most of the additional non-government income is for maintenance work that has to protect property, conservation sites and to fulfil legal duty through obligations and targets of Biodiversity Action Plans. This income does not cover a majority of work currently required to maintain river walls and sea defences in the East Anglian area, especially Suffolk, because grants are only given to schemes if they have a positive benefit-cost ratio, or are at the discretion of the Environment Agency.

The local Environment Agency Anglian Project Manager reports that he can only fund work on those projects with a benefit cost ratio of 5:1 (Allam 2011). The benefit cost ratio is the sum of the benefits (provided by the project activity) divided by the sum of the costs. If the ratio is not greater than 1 it will not attract GIA funding and other sources will have to be sought. The ratio of above 1 is government policy. In reality any scheme has to have a ratio of at least 5:1 and ideally 8:1 to attract funding (Allam 2011; Harries and Penning- Rowsell 2011).

The new Suffolk Environment Agency Strategy for the Alde and Ore Estuary in Suffolk, which has its current consultation embedded in a project renamed 'Futures' in a section about 'Managing the Coast' (Parker 2011) has examples of how funding is to be achieved outside that funded solely or mostly from government money. A description of the project is to be found in Section 3.6.2 and 3.6.3.

Other examples of schemes that illustrate funding changes are a £3m project to protect a heritage building and agricultural land that would not normally attract national funding, at East Lane, Suffolk. Local farmers sold land for housing with the support of the Planning Department of Suffolk Coastal District Council to raise money to contribute £1.8m towards coastal defences. Local fundraising also supported a scheme to stabilise an eroding soft cliff at Shotley, Suffolk. This scheme was funded with a consortium of funders that included Suffolk County Council, Harwich Haven Ports, Babergh District Council and the Suffolk Coast and Heaths AONB Unit as well as the local community. A further scheme has attracted funds from local residents to protect the beach in front of properties at Thorpeness in Suffolk (Burch 2011). These projects illustrate responses to the changing attitudes to current government funding policy for coastal protection.

Apart from issues with direct funding, secondary monetary concerns are with compensation for and insurance against flood risk. Following the 1953 flood, problems with compensation for loss of land and livelihood were identified (Evans 1953). However, there is still no compensation available from central funds today and insuring flood risk land is becoming more of an issue. Insurance is often not available in coastal areas designated for significant flood risk (Treby et al. 2006; Wheatley 2006). Social justice issues and fairness of treatment along with compensation for individual loss have also been highlighted (Milligan et al. 2006; Houston et al. 2007). There has been much pressure to address the issue of compensation for loss of property from flooding or erosion risk. In 2011 the Government has responded with a coastal erosion assistance grant of £6000. This is administered through local authorities to help homeowners with the cost of demolishing their homes at risk from loss from coastal erosion and some moving costs. However this grant was not to be considered as compensation (Burch 2011). Compensation and insurance problems therefore remain issues for local people who feel, or are at flood or erosion risk.

2.6 Summary

This chapter has described some of the background to changes along the coastline, especially in the Suffolk area of East Anglia. It has reviewed the causes of coastal flooding in sea level rise and climate change and the flooding that can be a result of

policy changes such as a 'managed realignment' strategy. Knowledge of the causes and consequences of coastal flooding is tested in this research and informs the first research question of **Research Question 1: What knowledge does the local population have of the causes, responsibilities and management of coastal flooding?** An outline of management responsibilities has been introduced in this chapter and a description of the decisions that have been made for changing funding decisions for coastal flood management. Chapter 3 describes in more detail the recommendations and policies that determine and influence flood management and who oversees the management of the coastline, past, present and future.

Further research questions seek to assess the levels of involvement of a local population to answer **Research Question 2: What involvement do local people have in coastal flood management?** Reasons that inhibit local people becoming involved are sought in answer to **Research Question 3: What are the barriers that local people have to participation in coastal flood management?** Ways to overcome some of the barriers to participation are sought in answer to **Research Question 4: What ways and methods can be identified to improve participation in coastal flood management?** More details of how the questions have been derived and tested are found in Sections 3.6 and 4.4. The next chapter reviews flood management in more detail.

Chapter 3 Understanding the complexity of coastal planning and flood management

3.1. Introduction

This chapter will consider who has responsibility in England for managing coastal regions, both historically and currently. It will discuss the evolution of the range of policies in place. It is thought that to understand flood management policy it is important to consider the legislation and policies for improving participation and associated coastal planning. Essentially people need to know who is responsible, what policies affect them, and what decision makers they are expected to engage with. Some of the knowledge about flood management explained in this chapter will form the basis of assessing that knowledge in the village of Orford, Suffolk.

Responsibility for planning policy for the coastline in England can be described at three different levels: Firstly that of policy from the national government that has been influenced by adherence to European Directives and Recommendations. Secondly the policy, plans and strategies that are generated by UK government and its agencies and thirdly how these are enacted at a local level.

At the European, national and local level there is an emphasis on integrating coastal zone management. To achieve the aim of integration there should be closer consultation and decision making between both those making the decisions and those who want to influence them (Defra 2009; Parker 2011). At the national level much of English coastal policy has been driven and influenced by EU guidance and legislation. Discussion of policy affected by the EU is described in Section 3.2. The main EU policies that are affecting integration either directly or indirectly are those for: improved public participation, EU Directive 2003/35/EC; a Recommendation for Integrated Coastal Zone Management (ICZM) 2002/413/EC (for which there are plans for ICZM to become part of a Directive from an EU Commission proposal in March 2013 for Integrated Coastal Management and Marine Spatial Planning); a Habitats Directive 92/43/EEC for wildlife protection and a Floods Directive 2007/60/EC, to plan for flood events. A history of flood planning that has affected current English national policy is outlined in Sections 3.3 and 3.4. Local level

management of coastal flood planning is described in Section 3.5, with especial reference to the coast of Suffolk and the estuary of the Alde and Ore rivers.

3.2. National policy for flood management derived from European Union policy

The particular EU principles in policies that affect coastal planning and flood management are to: encourage an increase in the amount of public participation in policies stemming from the Aarhus Convention in 1998 (EU 2003), explained in Section 3.2.1; expect efforts to improve the integration of policy and plans through the implementation of Integrated Coastal Zone Management (ICZM), explained in Section 3.2.2; ensure coastal protection through Habitats Legislation (92/43/EEC), explained in Section 3.2.3; and reduce and manage flood risk from the Flood Directive (2007/60/EC), introduced in Section 3.2.4.

3.2.1. National policy adopted from EU Directive for public participation (2003/35/EC)

The EU Directive on public participation in environmental decision making (European Parliament and Council of the European Communities 2003) implemented the obligations of the Aarhus Convention in 1998 (The UN Economic Commission for Europe 1998) that aimed to make the drawing up of certain plans and decision making at all levels more accountable and transparent. A main aim was to increase the public's awareness of environmental issues and increase their involvement, either as individuals or in groups. Another major aim was to improve the quality of decisions and make the final results more acceptable. It was hoped that planning agencies would reach out to gather information and ideas to encourage greater participation. Use of public participation exercises to modify decisions and review alternatives suggested by local stakeholders were to be encouraged. Ratification of ideas from the Aarhus Convention (See Box 3.1) led to implementation of EU Directive 2003/35/EC that obliged EU States to include the public in increased participation before adopting its plans. In 2005 the UK

Government ratified the Directive for inclusion of the public in UK Planning. This included planning relevant to the coast.

Box 3.1 UK Government's implementation of the Aarhus Convention

Source: Defra 2012.

> "The government believes that improved access to information and wider participation of the public in decision-making processes are essential for building trust within communities, increasing public authority accountability and making better environmental policy. Backed by access to justice, this will create greater transparency and openness in environmental matters, and will contribute towards society's goals of more sustainable and environmentally sound development.
>
> On 24 February 2005, the UK ratified the UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (The Aarhus Convention). In line with the Convention's procedures the UK became a full Party to the Convention 90 days after this date, in May 2005. The Convention is an important measure to ensure 'environmental democracy' throughout the UNECE region. The European Community as whole is also a signatory to the Convention, and ratified it on 17 February 2005."

The UK Government is therefore committed together with their associated agencies (like the Environment Agency), to the inclusion of stakeholders and citizens early on in decision making processes.

A more proactive approach is therefore required by government and its agencies to include stakeholders before decisions are made, that would hope to avoid conflict and unnecessary costs and delays, as described in Chapter 1 (Guthrie et al 2003; Sidaway 2005).

3.2.2. National flood policy from an EU Recommendation for Integrated Coastal Zone Management (ICZM) 2002/413/EC

There has been an interest for more than a decade in integrating planning along the coast through policies of coastal zone management and then from a later EU Recommendation for Integrated Coastal Zone Management. Table 3.1 charts the history of these policies and who is responsible for producing them.

Table 3.1 highlights some key developments in integrated coastal zone management. Increasingly the EU has become more influential in coastal zone management within

member states and has been an impetus for more effective ICZM. However there are concerns about how ICZM can be implemented due to its legal status as an EU Recommendation, which is a weak, non-binding, instrument that can be ignored, interpreted, or partially implemented (McKenna and Cooper 2007). Early suggestions for measuring ICZM were thought possible and desirable at a European or national level (Pickaver et al. 2004). However, it is at the local level were challenges of integration of plans and people into plans lie. In research by McKenna and Cooper (2006) in Northern Ireland they found that ICZM projects were short term and had no continuity due to high turnover of young project officers on short term contracts. They also commented that ICZM principles were carried out at the lowest possible level, with short term projects. Its voluntary and non statutory nature was, and is, a weakness (McKenna and Cooper 2006). Other research acknowledges that claims for the effectiveness of ICZM is contested but also proposes that at the regional and local levels ICZM can provide a structure for a more inclusive way of planning and to 'coalesce interest groups around issues' (Stojanovic and Ballinger 2009 p.61). Local level strategies for ICZM are described in Section 3.5.The European and national development of ICZM is shown below.

Table 3.1 History in the development in Coastal Zone Management (CZM), 1993 to 1996 and Integrated Coastal Zone Management (ICZM), 1999 to 2006

1993	Managing the Coast (Consultation paper), Department of the Environment (DoE) and the Welsh Office. Coastal planning and management: a review (A report to the DoE). Development below the low water mark DoE/Welsh Office. First Shoreline Management Plan produced.
1994	Coastal Forum (for England) launched.
1995	UK Government issued a list of possible sites (including marine sites) For consideration as Special Areas of Conservation under the EC 'Habitats' Directive (92/43/EEC).
1996	Towards Best Practice Guidelines on CZM (DoE) Byelaws Discussion Paper.
1999	EU Demonstration Project for ICZM (Hyder 1999).
2002	Recommendation adopted by EU Member States on implementing ICZM (2002/413/EC).
2004	Defra report on ICZM: a stocktake (Atkins 2004).
2006	Defra Consultation: Promoting an integrated approach to management of the coastal zone (ICZM in England) (Defra 2006a).
2010	UK report to the European Commission on ICZM progress.

Source: (Ballinger 1999; Hyder 1999; Atkins 2004; Defra 2006a; Defra 2010)

The gap between 1996 and 1999 is due to a change from CZM to ICZM for proposals to integrate coastal zone management and an EU Recommendation. There are also plans from March 2013 for a new EU iniative that provides a framework for marine spatial planning and integrated coastal management and could lead to a new Directive (EC 2013). These plans are in early stages but could provide a way forward for integrating coastal management that has in the past proved difficult to achieve.

Integrated practices have not been easy to achieve due to the multitude of stakeholders concerned with coastal planning. It has been recognised as a slow process (Defra 2010). Turner (2000) in his research on integrating natural and socio-economic science in coastal management, identified upwards of ten different land and water users of the coast, all with different plans for its use. Many of the land uses cited such as agriculture, urban, commercial and fisheries would be affected by coastal flooding and therefore need to be made aware and included in flood planning. The diversity of uses and the problems caused by overlapping and/or conflicting demands on the coastline and coastal zone prompted a three year demonstration project, initiated by the EU and carried out by a consultancy company, the Hyder Consultancy shown in Table 3.1 (Hyder 1999). The Hyder project identified eight principles for effective ICZM (Integrated Coastal Zone Management). The principles have been cited as criteria for successful ICZM (Parker 2006; Parker 2007; McKenna and Cooper 2007; McKenna et al. 2009). The principles are:

- A broad holistic perspective
- A long perspective
- Adaptive management during a gradual process
- Local specificity
- Working with natural processes
- Participatory planning
- Support and involvement of all relevant administrative bodies
- Use of a combination of instruments.

(Hyder 1999)

The conclusions of the demonstration project were reported in 1999 and provided technical information on sustainable coastal management and stimulated debate

among those involved in planning and management on the coast. The recommendations explained how the EU was to promote ICZM. It outlined ways in which member states needed to develop their strategies for ICZM. Reports on consultations of how to involve coastal stakeholders were produced in 2006. Since 2006 progress towards ICZM has not been rapid. There has been a failure to prioritise principles and 'pick a principle' (McKenna et al. 2009 p.167). This has resulted in limited progress towards ICZM. Comment within a Defra report to the EU Commission in 2010, stated, "Implementation of ICZM is a long term and slow process" (Defra 2010, p15).

Research carried out by Ballinger et al. (2010), assessed progress of the eight principles in seven study areas, four in England, two in Ireland, and one in Belgium. They found in Progress Indicator workshops that application of the best principle was local specificity, better results were for supporting stakeholder involvement but the worst progress was made in planning for a participatory approach. This did vary across the study areas, but in four of the seven study areas the EU ICZM principle of a participatory approach had not been implemented. The most participation appeared to be for issue identification. Issue identification and potential barriers to participation are also sought in this research. This case study particularly focuses on participatory practices and their improvement. However, a study of the background of management and natural processes has also been undertaken. This aids an understanding of the issues that may be relevant and emerge from the research.

The main ways Defra appears to be implementing ICZM in 2012 for flood management, is through the Marine and Coastal Act 2010 and its Marine Management Organisation (discussed in Section 3.3.3), The Flood and Water Management Act of 2010, Coastal Partnerships (see Section 3.4.1) and more directly the Pathfinder Programme, to discover good practice in ICZM. One part of the ICZM process relevant to this research encourages increased public awareness, education and participation to encourage a sense of greater coastal stewardship within communities (Defra 2006a). This aim has continued into 2011, and is demonstrated in Defra's 'Pathfinder Programme'. This programme has sought improved ICZM practices in community engagement across the country (Defra 2010). The first Pathfinder project ran from December 2009 until the spring of 2011.

Fifteen local authorities had £11m of Defra funding to find new approaches to planning for and managing coastal change to include the integration of ideas from local people.

The Government's present route to integration appears therefore to be to highlight examples of good practice that could improve understanding of how local communities can adapt to changes in the coastline (Barrett 2011). Defra support also had and has implications for the work of local partnerships, both voluntary and planned, which will be discussed in Section 3.4.1. Partnership working seems to be at the centre of the Government's new National Flood and Coastal Erosion Management Strategy for England (Hardiman 2011) and a way to empower local communities and stakeholders in more longer-term partnerships (Shipman and Stojanovic 2007). The UK Government also appears to be relying on the outcomes of the Marine and Coastal Access Act to provide greater integration of planning along the coast (Defra 2011). For a further discussion of the possible effects of the Marine and Coastal Act on flood planning see Section 3.4.2.

3.2.3. National policy from the EU Habitats Directive 92/43/EEC

Habitats that could be damaged by coastal flooding are protected by strong EU legislation in the Habitats Directive 92/43/EEC (EEC 1992). Enacting the Directive in England to protect and conserve the landscape is one of the major areas of concern for Natural England. Natural England was formed from an integration of three agencies, amalgamated in 2007. The agencies were: English Nature, whose main remit was that of the protection of wildlife habitats; the Countryside Agency, whose prime consideration was with recreational land use; and the Rural Development Agency concerned mostly with economic and farming issues. The main aims of Natural England are working for people, places and nature and to enhance biodiversity, landscapes and wildlife in rural, urban, coastal and marine areas (Natural England 2007).

Protecting and conserving the value of the landscape for Natural England means that among its responsibilities, inherited from English Nature, are ensuring the status of Special Protection Areas (SPAs), Special Areas of Conservation (SACs), and to

designate and protect Sites of Special Scientific Interest (SSSIs). SACs are areas of protection that have emerged from the European Union Habitats Directive 92/43/EEC (EEC 1992). SPAs and their protection of birds and their habitats are from the Birds Directive 79/409/EEC and 2009/147/EC. Natural England has therefore considerable powers to protect wildlife habitats in the coastal zone. The Council Directive also supports the implementation of the European Union's nature conservation policy and the Natura 2000 (N2K) network (EU 2013). Together, SPAs and SACs make up the N2K network. N2K is a network of areas designated to conserve natural habitats that are rare, endangered or vulnerable in the European community. These policies encouraged the development of the UK Coastal Habitat Management Plans (CHaMPs) that have been particularly developed along the eastern and south east English coastline. The estuaries of the Suffolk coast have many of these designated protection areas, therefore Natural England, is an important decision making agency to consult in coastal flood planning. There has been a perception that English Nature and now Natural England have protected the interests of wildlife too vigorously and often at the expense of people who live on the coast; a perceived 'green agenda' (Barker 2005). This premise will be tested in this research.

3.2.4. National policy from the Floods Directive (2007/60/EC)

The EU Floods Directive 2007/60/EC (see Box 3.2) requires the UK Government to ensure assessments of flood risk, to produce management plans and to draw up maps for flood risk areas. This has mostly been the responsibility of the Environment Agency for coastal and estuarine areas and rivers, under the UK Flood and Water Management Act 2010 (Defra 2013). For a more detailed explanation of the implications of the Floods Directive and Act see Section 3.4.3.

Box 3.2 EU Floods Directive

The Directive 2007/60/EC was proposed by the European Commission on 18th January 2006 and was finally published in the Official Journal on 6 November 2007. Its aim is to reduce and manage risks that floods pose to human health, the environment, cultural heritage and economic activity.
The Directive requires Member States to first carry out a preliminary assessment by 2011 to identify river basins and associated coastal areas at risk of flooding.
For such zones they would then need to draw up flood risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by 2015.
The Directive applies to inland waters as well as all coastal waters across the whole territory of the EU.

Source: Joint Research Council JRC website accessed 4th March 2013.

3.3 A history of national policy for flood defence and coastal erosion

National flood policy for coastal areas is often thought to have evolved as a response to serious flood events (Johnson et al. 2003). Research at the Flood Hazard Research Centre at Middlesex University found that this was true for a new flood warning system put into place after the floods of 1953. However from that time they also recognised that understanding changes in flood policy was a complex issue due to a combination of: contextual drivers (information, knowledge, technology, social, political, economic); behavioural drivers (values, attitudes, beliefs); and, environmental drivers (scientific knowledge-base, extreme events) (Johnson et al. 2003). Some environmental drivers have been described in Chapter 2, the issue of behavioural drivers are at the centre of this investigation and will be described in later chapters of this thesis. Contextual drivers that establish policy are described in this chapter.

There follows a discussion of the history of the changing responsibilities for flood and coastal defence that highlights changes in the contextual effects on national policy and highlights changing circumstances from events and decisions that have impacted on national policy and planning for coastal defence.

3.3.1. National flood policy and coastal defence from 1953 -1993

Government has always responded to extreme events, especially if they have caused loss of life or property or both (Johnson et al. 2003). Such a decisive response was the result of the aftermath of the 1953 floods that especially affected the east coast of England. A higher awareness of the need for flood defences was therefore the result of these floods that also produced revisions of policy.

The beginning of this period of policy revision was therefore 1953. The cost of the 1953 floods was significant, with the loss of 307 lives, and 32,000 people evacuated from their homes. There were 1,200 breaches of the sea walls and the area of Foulness was completely submerged. Saltwater contamination to agricultural land was the result of the flooding on a large scale. 1,000 cattle, 8,000 sheep, 1,500 pigs and 20,000 poultry were lost, at a cost of £10 million. 20,000 houses were flooded, about 400 of these destroyed and 200 were beyond repair at a cost £4-£5 million

pounds (Waverley 1953). Four to five million pounds is an equivalent cost today of £293 million.

The Home Secretary at the time of the 1953 floods was Sir David Maxwell Fyfe, who described the Government's response as a combination of: strenuous efforts to repair defences; flood warnings were to be more localised; and River Boards should advise the police of the danger of flooding (Fyfe 1953). Prior to the 1953 floods the police and local authorities had received information from The Ministry of Agriculture Fisheries and Food (MAFF) via the Metrological Office, to issue flood warnings. As a direct result of the 1953 floods, a flood-warning plan and details for its operation were instigated. This involved close co-operation between the different agencies of the river boards, county, borough or district councils and the police. It was up to local authorities to devise a flood warning system. At the time it was thought inadvisable to broadcast flood warnings using the BBC, as unaffected areas would become 'unnecessarily alarmed'. It was up to each individual area to devise their own warning systems in response to local conditions (Waverley 1953). This was an early example of national policy allowing for local interpretation.

In the first half of the 20th Century decisions on, and responses to, flood management had been to reclaim land from the sea for agricultural use and therefore to protect land (Fyfe 1953). Central Government policy went through a series of incremental and gradual changes in flood and coastal defence policy post 1953 up to the period around 1993. The emphasis until the late 1970s was for land drainage and the increase in agricultural production for post-war self sufficiency. There was a preference for hard engineering, where decisions on defences were made on a site-by-site basis, with no strategic approach (Tunstall et al. 2004).

During the 1980s and early 1990s government investment moved away from agriculture and land drainage to investment in urban flood protection (Tunstall et al. 2004). The decision was a response to increasing farm efficiency and subsidies by the EU and UK Government, which in part led to agricultural overproduction (Cobb 2000). Rural land and flood defence was, therefore, given low priority in the 1993 Strategy. The highest priority of the Strategy became flood warnings. Adoption of

the 1992 Habitats Directive also emphasised the need to integrate engineering with environmental protection (Tunstall et al. 2004).

From powers given to local authorities in 1947 from the Town and Country Planning Act (see Table 3.2) responsibility for development on flood plains resided with local planning authorities. The importance of this planning permission is emphasised by Government circulars in 1947, 1962, 1967 and 1982. However, different local authorities have varied in their approach to development in flood risk areas, and there has been evidence of unwise development on floodplains (Tunstall et al 2004). The responsibilities for the decisions for flood and coastal defence up to 1993 are shown in Table 3.2.

Table 3.2 Legislation, policy and operational responsibility for flood and coastal defence until 1993

Legislation	Town and Country Planning Act 1947 Coast Protection Act 1949 Water Act 1989 Land Drainage Act 1991
Policy Responsibility	Department of the Environment (DoE) (until 1985) then transfer of responsibility for coast protection to the Ministry of Agriculture, Fisheries and Food (MAFF)
Operational Responsibility	National Rivers Authority (formed by the 1989 Water Act, an amalgamation of water authorities post privatisation, conservation was also added to their responsibilities) Internal Drainage Boards (formed by the Land Drainage Act 1991) Local Authorities (responsibilities from the Coast Protection Act 1949 for coastal protection and some flood defence.) The police had responsibility for warning householders of flooding to their homes and property

Significant developments for flood management were the change of responsibility from the DoE to MAFF, with its emphasis on farming and the environment. Farm management was also directed by the establishment of the Drainage Boards to oversee farmland drainage abutting the coast and rivers, and a dedicated rivers

authority that would eventually become amalgamated into the Environment Agency. Local Authorities concentrated on coastal protection while the National Rivers Authority oversaw flood defence of rivers and estuaries.

3.3.2. National flood policy and coastal defence from 1993-2003

1993 was a significant turning point for coastal planning in that Government policy brought together coastal managers and decision makers to work together to produce Shoreline Management Plans. It was also the start of many Coastal Partnerships that were to aid the integration coastal management (see Section 3.5.1). Most significantly 1993 marked the first formal Government strategy document for flood warning and coastal and river defence, which was not revised until the next strategy of 'Making Space for Water' proposed in 2003 (Defra 2004). In 1993, the government policy on flooding emphasised the need for:-

- Adequate and cost effective flood warning
- Technically, environmentally and economically sustainable flood defences

Not permitting inappropriate development in flood risk areas

(Defra 2006)

These objectives left the responsibility for flood defence with the newly formed Environment Agency in 1996, along with the local authorities and internal drainage boards. Table 3.3 shows legislation, policy and operational responsibilities from 1993 until 2003.

Table 3.3 Legislation, policy and operational responsibilities for flood and coastal erosion risk management 1993 to 2003

Legislation	Coastal Protection Act (1949) Land Drainage Act (1991) Water Resources Act (1991) Environment Act (1995).
Policy Responsibility	MAFF until 2001 then Department for Environment Food and Rural Affairs (Defra).
Operational Responsibility	Environment Agency through Regional Flood Defence Committees. Environment Agency established by the Environment Act 1995. Internal Drainage Board established by the Land Drainage Act 1991. Local Authorities – Powers from the Coast Protection Act 1949.

The main changes in responsibility in the post 1993 strategy were due to Government department restructuring, specifically from the Department of the Environment (DoE) and Ministry of Agriculture Fisheries and Food (MAFF) to a combined Department of the Environment, Food and Rural Affairs (Defra). Defra at this time also lost its planning function which transferred to the Office of the Deputy Prime Minister (ODPM). This change meant coastal defence had greater links to the planning system (Pettit 1999). More recent government restructuring has meant planning functions are now with the Department for Communities and Local Government (DCLG). The National Rivers Authority was absorbed into the Environment Agency, which also took over flood warning from the police in 1996 (UK Parliament 1998).

Flood warning was, and still is, the responsibility of the Environment Agency. Flood defences were the joint responsibility of the Environment Agency, Internal Drainage Boards (IDBs), Local Authorities (LAs) and individual landowners. Development on land at risk from flood was the responsibility of Local Authorities who take, or should take, advice from the Environment Agency on the risk of flooding on the newly developed land.

3.3.3. National flood policy and coastal flood and coastal erosion risk management from 2003 to the present

What makes 2003 such a significant time for change in decision making for flood defences is that it heralded new developments in policy from Defra. 'Making Space for Water' was issued in 2003 for consultation and launch in 2005 (Defra 2005a). Despite changes in government since the time of the 'Making Space for Water', the aims of this proposal, to drive down flood risk was still supported by the Government in 2011. The new coalition government however, has more emphasis on delivery through the Flood and Water Management Act of 2010 (Hardiman 2011).

The situation for flood and coastal erosion risk management, described in Table 3.4, means the Environment Agency (EA) now has joint responsibility for coastal erosion with local authorities and still has permissive powers for flood management along

the coast. This also includes flood warning and monitoring for extreme events. The EA has to make decisions about flood management along coastal rivers and low lying areas of coastline. Legislation to include local communities in flood management decisions is also undergoing increased emphasis from the work of the Department of Communities and Local Government.

Local authorities at this time still had permissive powers from the Coast Protection Act (1949) to protect the coast from erosion and inundation from the sea, which overlapped with the Environment Agency's responsibility for low lying areas on the coast. Local authorities also have permissive powers under the Land Drainage Act of 1991 to take responsibility for flooding and since the Flood and Water Management Act of 2010, responsibility for all surface water flooding. A further overlap could occur with the Internal Drainage Boards that also manage flood risk from ordinary watercourses that can flow directly into estuaries. The EA often contract out work on water courses back to local authorities and drainage boards. In 2012 due to the Flood and Water Management Act of 2010, county councils have also taken on direct responsibility for flash flooding from surface water, groundwater or 'ordinary water courses' such as streams and ditches (Burch 2012*)*. It would appear there is overlap between responsibilities for flooding in inland areas from the coast. There could be the possibility of a complex responsibility situation developing in these cases. The complexity of institutional arrangements between local government, often planners, and engineers, such as those in the Environment Agency, has been identified as problematic for some time (Ballinger 2002).

Table 3.4 refers to the new legislation stemming from the EU Floods Directive 2007/60/EC that has led to the UK Flood and Water Management Act of 2010, which stipulates flood mapping for all areas at flood risk that must be made available to the public. Regional Resilience Teams are temporarily set up to help the Government have better information from the emergency services and local authorities and therefore a quicker response to regional 'disruptive challenges' such as serious flooding. Regional Resilience Teams in each government office act as a conduit for communications between central government and the local level. They are responsible for activating Regional Operation Centres when required, supporting

local response and recovery efforts for emergency events such as flooding (Doran 2013).

Table 3.4 Legislation, policy and operational responsibility for flood and coastal erosion risk management from 2003 until the present

Legislation	Flood and Water Management Act 2010
Policy Responsibility	Defra for Flood and Coastal Defence. Department for Communities and Local Government (DCLG) for Community Inclusion and Planning Policy.
Operating Authorities	Environment Agency for flood risk, defence, main rivers, critical water courses. Local Authorities for flood risk in ordinary water courses not in the IDB. High ground for coastal erosion. Internal Drainage Boards (IDB) for Flood risk in their areas.
Other Agencies and Departments with responsibility for aspects of flood management	Regional Resilience Teams Regional Flood and Defence Committees now Regional Flood Coastal Committees County Councils Natural England Coastal Authority Groups.

Other organisations highlighted in Table 3.4 also have responsibilities for flood prevention, physical defences and protection. Previously Regional Flood and Defence Committees regulated improvements in watercourses to alleviate flooding of land and property, maintain and improve sea and tidal defences, and also provide flood warning. Their membership comprised a Chair, and a number of members appointed by the serving Secretary of State, two members representing the Environment Agency and a number from local councils. They met quarterly and the Environment Agency provided the Secretariat. Recent changes due to the Flood and Water Management Act (2010) mean that the Committee is now a Regional Flood and Coastal Committee with the same membership as above but broader responsibilities for flood risk and coastal erosion and a greater input into funding

decisions. A general trend in new responsibilities is to find additional sources of money, for example more part-funding by local communities that may also include the increased involvement of the county councils through their new responsibilities, also from the Flood and Water Management Act (Burch 2012) (see Section 3.5.2 for a discussion on new local funding proposals).

Habitats are the responsibility of Natural England. Land has to be allocated for the use of wildlife that is designated as nationally significant. If designated wildlife is under the threat from flooding, it must be protected or the wildlife relocated, that is, found a substitute habitat if flooding is unavoidable (EU 1998). Natural England also undertakes to protect landscape, and is therefore involved in planning that affects cliffs and land susceptible to erosion along the coastline. The responsibilities of Natural England from the Habitats Directive (92/43/EEC) are further explained in Section 3.2.3.

Coastal Authority Groups (CAGs) and Defence Groups were gathered for the purpose of supervising Shoreline Management Plans and will be discussed in more detail in section 3.3.4. CAGs had a similar membership to Flood Defence Committees, with a chair and technical secretary (preferably from the lead authority, which at present is usually the LA), representation from the EA, representatives from all local planning authorities concerned, Natural England, invited representatives from interested organisations, such as academics, and a Defra representative from the Flood Management Division.

Figure 3.1 shows the current Coastal Groups for England and their approximate geographical areas. The map is composed using information from the Environment Agency website from a document called EA Strategic Overview of the Coast. In 1999 there were seventeen Coastal Defence Groups listed (Potts 1999). The present number shown in Figure 3.1 is now reduced to seven. These areas do not include most of the coast of Wales. The Coastal group that most affects decisions in the Anglian region, which includes the research area, is that of the East Anglia Coastal Group.

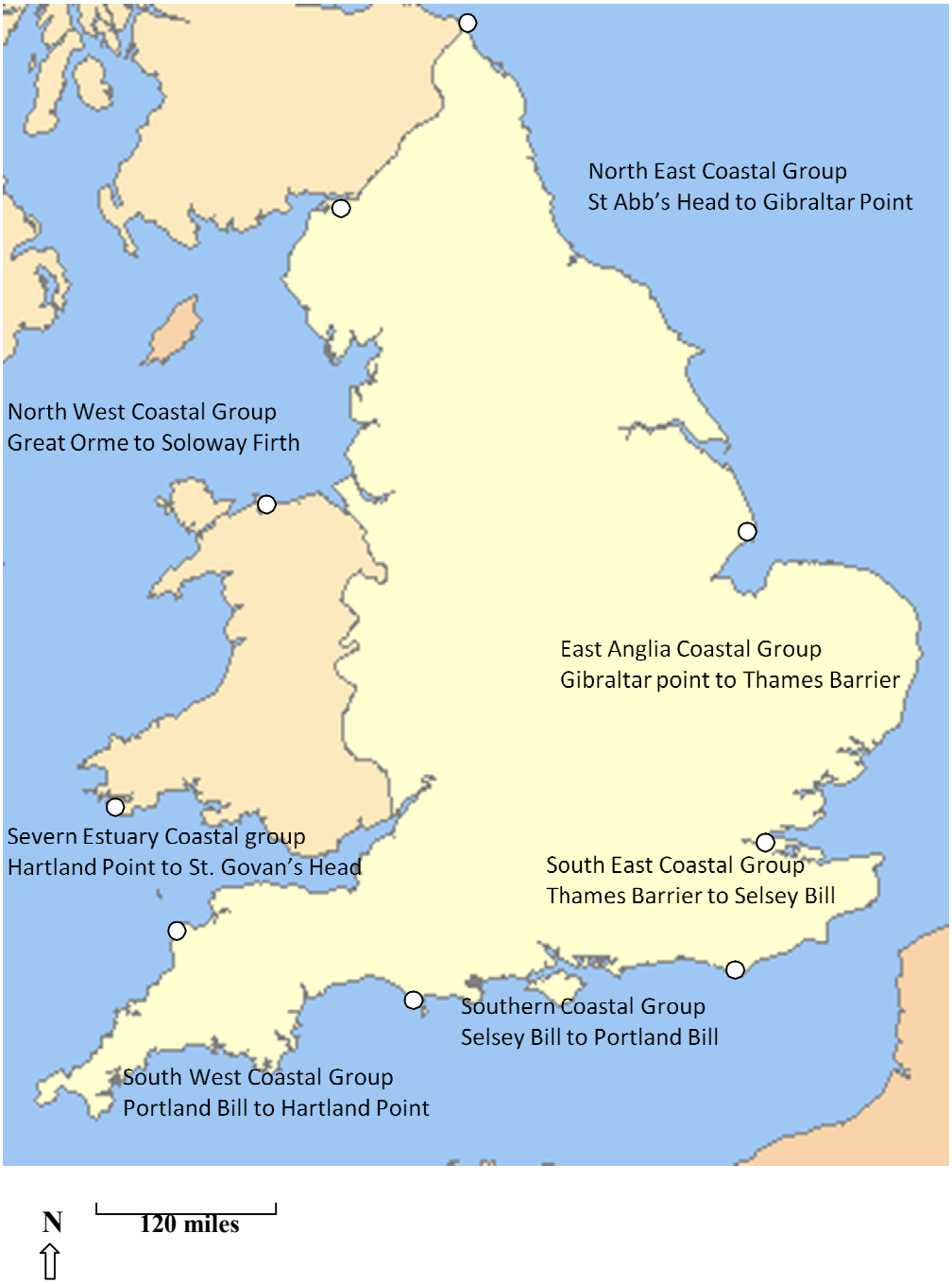


Figure 3.1 Coastal Groups. Source: Environment Agency (2008)

3.4. National flood and coastal defence strategies and legislation

National flood and coastal defence strategies between 2003 and 2015 are listed in Table 3.5. The table shows the development from recommendations to present legislation and strategies that has implications for coastal flood management.

Table 3.5 Flood and coastal defence legislation and strategies 2003-2015

2003	***Ministerial Recommendation*** Elliot Morley, the Minister for Fisheries, Water and Nature Protection at Defra in 2003 advocated 'radical change' in flood and coastal defence responsibilities, recommending the Environment Agency has the lead responsibility. ***Making Space for Water (Introduction)*** Proposal by Defra for plans for flood and coastal erosion risk management
2004	***Making Space for Water Consultation*** Flood and Coastal Erosion Management Consultation Document (Defra)
2005	***Proposals for a Marine Bill*** UK Government
2006	***Making Space for Water*** Environment Agency Strategic Overview – Consultation Document ***ICZM*** Defra Consultation: Promoting an integrated approach to management of the coastal zone (ICZM) in England
2007	***EU Floods Directive (2007/60/EC)*** *for identification mapping and planning for flood risk areas.* Leading to the UK Flood and Water Management Act and Flood Risk mapping by 2013.
2009	***Marine and Coastal Access Act*** *leading from the Marine Bill* Established the Marine Management Organisation (MMO)
2010 **2010** **2013**	***Adapting to Coastal Change: Developing a Policy Framework Report*** Reviews innovative approaches and commits up to £6000 for home loss due to coastal erosion (not compensation) ***Flood and Water Management Act*** Requires the EA to prepare a national strategy for risk of flooding and coastal erosion Regulations from Flood and Water Management Act for ***Hazard and Risk Maps*** for the end 2013. Produced by lead local authorities
2015 **2015**	***Water Framework Directive*** (Implementation) ***Flood Risk Management Plans*** produced by EA in England and Natural Resources Wales.

3.4.1. Implications of flood and coastal defence strategies - Making Space for Water

As can be seen in Table 3.5 there were several years of planning by Defra in their consultation document 'Making Space for Water' that was proposed to change the governance of coastal areas and thereby decision making for the coastline (Defra 2004). Changes in responsibility would have implications for how stakeholders and

citizens can be included. However there has been, and still is, a mixture of responsibilities between the Environment Agency, Local Authorities, IDBs, RFCCs and CAGs, as previously discussed.

Policy set out in the 2006 Consultation in 'Making Space for Water: Environment Agency Strategic Overview' (Defra 2006b), preferred the option of the Environment Agency taking lead control of not just flooding, but also coastal erosion protection work which was carried out by local authorities. It was also proposed that the Environment Agency take the lead on the production of Shoreline Management Plans. This has not happened in many cases, the lead for most of the Shoreline Management Plans is still with the local authorities (see Section 3.4.3). The remit of a Shoreline Management Plan is to carry out a large scale assessment of the risks associated with coastal processes with the aim to reduce risks to people, development along the coast and natural environments. They have designated strategies such as recommending hold the line, management realignment and no active intervention defined in Chapter 2 Section 2.4.

Apart from the responsibilities of leading flood management policy, funding was also planned at the time of 'Making Space for Water' in 2006 to be increasingly delegated from central government to the Environment Agency and Regional Flood Defence Committees. They will be able to raise levies on Local Authorities for coastal erosion projects, as well as flood defence, and decide on priority projects. Previously the Agency submitted applications to Defra for priority funding. It is now felt that these 'old' priority funding schemes resulted in an all or nothing response from the Government, whereas new partnership funding will result in more schemes going ahead with more local choice. This may be especially the case, (or not), in rural areas (see Section 3.5.2), where there was no likelihood of priority funding, before current changes in funding (Maresh 2011).

In the economic times prevailing in 2011, funding and the perceived Government response of not funding certain coastal flood defence projects, will dictate adaptation and change in the Environment Agency response to management of the coast. Baptiste (2011) representing the Environment Agency view at a conference, stated that the affordability of projects might mean that they have to be downsized, or more

partners sought to find the money to fund projects. She also thought that Environment Agency projects may have to be deliverable with less funding. People's increased expectations will have to be managed, and new risk assessments produced to help people support their own risks (Baptiste 2011). Such is the challenge to local people for proposals in responding to new Environment Agency coastal strategies. The question of finding new funds for flood defence projects has been highlighted in Sections 2.5 and 3.5.2.

Government agencies and local authorities are expected to work together with local communities and be flexible when they plan strategies that must take into account sustainable development. Planning Policy Statements were part of the National Planning Policy Framework which now has one planning policy that could encourage more local permissions for development. Neighbourhood development plans as part of the new Localism Act could also address flood risk in a local area (DCLG 2011). Other updating of Government legislation and strategies that have implications directly or indirectly for flood management are from: The Marine and Coastal Access Act with new Marine Spatial Planning (MSP) (discussed in Section 3.4.2); the Water Framework Directive (WFD) (discussed in Section 3.4.3); and updated Shoreline Management Plans (SMPs) (discussed in Section 3.4.3).

3.4.2. Implications of the Marine and Coastal Access Act 2009

The UK Government is currently planning integration of plans for the coastline through the aims in the Marine and Coastal Access Act. This could help to encourage a more integrated system in estuaries and coastal areas because current arrangements are 'complex', 'inconsistent' 'incomplete' and often split between authorities (Defra 2006d). However this may be difficult to achieve since some marine functions will be reserved for the UK Government and some devolved to regional administrations. It is thought by the Government that the eventual introduction of by-laws may be necessary to regulate some of the following aims of the new Marine Act:

- To protect marine resources through Marine Spatial Plans (MSP) (these plans are completely new)

- To control industrial use of the sea with Marine Consents (an important consideration for the coasts is licensing for dredging and coastal and estuarine use)
- To initiate a new organisation to manage marine functions. A Marine Management Organisation (MMO)
- To improve the legal protection of marine biodiversity by Marine Nature Conservation (there may have to be co-operation with Natural England)
- To develop Integrated Coastal Zone Management (ICZM) to co-ordinate activities in busy estuaries and coastal areas because the present management is complex and inconsistent
- To manage fish stocks and the environmental sustainability of marine areas, through Fisheries Management and Marine Enforcement

(Defra 2006d)

With a change in government the coalition government in 2011 published its confirmation to implement initiatives from the Marine and Coastal Access Act to include:

- marine planning
- marine licensing
- marine conservation zones
- coastal access

(Defra 2011)

The effect on the terrestial coastal areas of the Marine and Coastal Access Act may mostly be access, conservation and licensing. A balance may need to be maintained between the demands at the coastal fringes of people and wildlife. There may be conflict in planning between marine and coastal areas because the new marine spatial plans can have overlaps with local authority planning for the coast (see Figure 3.2). It is thought that planning across the land-sea interface is one of the biggest challenges remaining with a complex range of existing responsibilities that has not yet been resolved anywhere (Bradshaw 2007).

An important role for local steering groups associated with the Marine Management Organisation (MMO) is to facilitate public participation and integration of local experience by community engagement in the marine planning process (Defra 2007a). Involvement in MMO planning has been restricted to limited stakeholders in large regional consultations and no members of the public were reported to be involved (SOMG 2012)

There is an expectation by Defra that coastal groups, especially Coastal Partnerships, discussed in more detail in Section 3.5.1, are one of the local level management solutions that will be able to deliver public participation. Coastal Partnerships will help to engage with the public and have input into Marine Plans. At the end of 2012 the process for this is not established.

3.4.3. Implications of the Water Framework Directive (2000/60/EC) and Flood and Water Management Act for flood management

The main aim of the Water Framework Directive (WFD) (2000/60/EC) is also integration and standardisation of the way water bodies are managed across Europe. The Directive covers groundwater (and therefore irrigation), rivers, estuaries, that is the area of river catchments and marine waters up to one nautical mile offshore (see Figure 3.2). Objectives are to improve water quality, stop the deterioration of habitats and improve aquatic wildlife habitats. The Directive also has an important aim to reduce the danger of flooding. The first planning cycle for the WFD must be completed by 2015 then reviewed every six years. The same cycle or review applies to the new Flood and Water Management Act of 2010. Here the Environment Agency (EA) has responsibilities for the maintenance and development of flood and coastal risk management in England. The EA also has the responsibility under the Act to specify and measure risk management and assess costs and benefits for the purpose of flood management decisions. Both strategies must take into account climate change and wider environmental effects. The strategies should also have an element of consultation with the public, as well as all flood risk management authorities (UK Government 2010a).

In 2012 the responsibility of county councils from the Flood and Water Management Act is for inland flood management as opposed to the Marine Management Organisation and the production of Marine Spatial Plans that has most of its responsibility for offshore. This leaves the coastal areas still with the possibility of overlapping responsibilities. Currently there are problems with the integration of these plans. There has for many years been much complexity in the administration of coastal activities (Ballinger 2005 p. 189). There is the potential for overlap of areas for decisions about conservation, legislation, licensing of activities and planning development (Tudor 2007). It can be seen that there are many plans that can effect flood management of the coastline both inland and offshore (see Figure 3.2). Five of the plans that are shown in Figure 3.2; Land Use Plans; Shoreline Management Plans; Environment Agency Estuarine and Coastal Strategy Plans, River Basin Management Plans and Coastal Habitat Management plans are all those that local people could be aware of with regard to their influence on flood planning. Knowledge of these plans can form an understanding of some of the effects of strategies on flood planning and will be used to assess knowledge of flood planning in the study. Marine Spatial Plans have been introduced more recently, post survey work. Increases in initiatives will need careful planning, explanation and integration, if they are to be understandable to local populations (Midlen 2007).

Current plans that can affect coastal zone flood management are shown in Figure 3.2. The figure illustrates the diversity, scope and potential overlap of plans. Overlaps in the three zones at the coast are shown as Land, Littoral Zone and the Sea. The dashed lines show the boundaries between inland of the high water mark (HWM), the Littoral Zone between the HWM and low water mark (LWM), and the designation of the sea is beyond the LWM. The arrows show the nautical miles (nm) that the plan affects seawards. Shoreline Management Plans and Environment Agency Coastal Strategy Plans affect the immediate coastline.

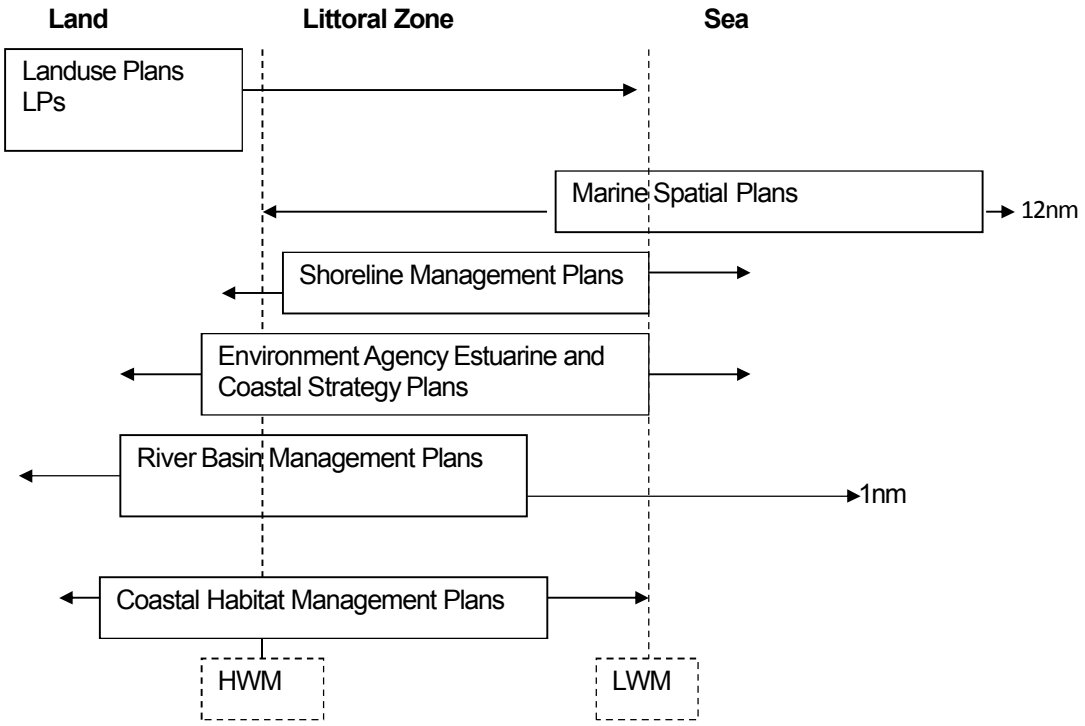


Figure 3.2 Diagram to show potential overlaps in current and developing plans for the coastline in Land, Littoral and Sea Zones. Adapted from (Tudor 2007).

Key to diagram:

HWM - High Water Mark

LWM - Low Water Mark

1nm - To one nautical mile offshore

12nm - To twelve nautical miles offshore

EA - Environment Agency

LPs - Local Plans

Figure 3.2 shows six of the most important plans for managing the coastline for flooding. They are potentially ones that local people may have heard of if they have been involved in coastal flood management. At the top of the diagram is land use planning from LDFs through Local Plans that local councils have had to produce (ODPM 2004b, NPPF 2012). Local Plans need to address the problem of not developing on land liable to flood and protecting development that has been built on floodplains. Planning for flood management should also take into account recommendations from Shoreline Management Plans (SMPs), which are often led by local authorities (see a discussion of SMPs in Section 3.4.4). River Basin

Management Plans produced by the EA, will be needed under the EU Water Framework Directive for completion in 2015 (EA 2006). The EA is also using SMP policies in experimental work on the Suffolk estuaries, where policies such as: no active intervention; hold the line; advance the line; managed realignment and combinations of these (which is new from the last strategy plan), are being applied to local river estuaries and coastlines (See Chapter 2 Section 2.4. for an explanation of these terms).

Coastal Habitat Management Plans (CHaMPs) are technical documents that provide information for SMP11s and coastal defence strategies for the requirements of the Birds (79/409/EEC) and Habitats (92/43/EEC) Directives. They were used along the Suffolk coast in 2008 /2009, at the time of the research. Natural England and operating authorities, usually the Environment Agency, are responsible for preparing CHaMPs, especially when there is conflict between flood management activities and ecological requirements. An example of this is the need for the relocation of birds to compensatory habitats due to loss of habitat or disturbance caused permanent flooding. This could be the result of a management strategy such as managed re-alignment. The Environment Agency would therefore appear to be responsible for producing plans for both flood defence and habitat protection. The EA will also be responsible for replacing their current Catchment Management Plans with River Basin Management Plans and take the lead responsibility for flood and coastal defence. Despite the proposals of 'Making Space for Water', from its introduction in 2004 and consultations in 2006, for the Environment Agency to take the sole lead in flood management, it would appear in 2013 there is still shared responsibility between the Environment Agency and Local Authorities. The Floods Directive (2007/60/EC), leading to the UK Flood and Water Management Act will also have an effect on habitat plans due to designation of land liable to flooding (Defra 2010a). Therefore there is still the need for the Environment Agency and other government agencies, such as the Marine Management Organisation, local government and Natural England to make the implications of their plans clear to each other and understandable to local people.

The consultation for the second Shoreline Management Plan for planning flood risk along the Suffolk coast, referred to in Section 1.2, stated that although there were

problems with engaging the public, it was an example where there local government and the Environment Agency work closely together in the production of Shoreline Management Plans. Either the Environment Agency or district councils lead on Shoreline Management Plans (SMPs). 40 out of the 49 SMP1s for the whole country were led by local authorities. In 2009 the reduced twenty-two SMP2s have nineteen plans led by local authorities and therefore only three by the Environment Agency (see Figure 3.3 and 3.4 in Section 3.4.4) for Shoreline Management Plan designation of areas). The significance of these plans has been reported in the adverse reaction to a change in a SMP1 designation detailed in Section 1.1 and The North Norfolk SMP2 Pilot in Section 3.4.4. A more detailed description of SMPs follows.

3.4.4. National policy for flooding and coastal erosion management: Shoreline Management Plans

One of the most important developments in recent years for coastal defence, after their inception in 1993 and reviews and government guidance reports in 1995, 1999 and 2001 and 2006, has been the production of Shoreline Management Plans (SMPs). In the past the UK Government's Ministry of Agriculture Fisheries and Food (MAFF), saw SMPs as the basis for coastal defence that would suggest ways to reduce risks to people and develop the natural environment in a sustainable way (MAFF 2000). The objectives of SMPs were to improve understanding of coastal processes; predict the future evolution of the coast; identify assets that could be affected by coastal change; encourage research and monitoring of coastal processes; and facilitate consultation between all groups with an interest in the shoreline (Potts 1999). Government advice indicated that a preferred approach must then be to select one or a combination of the 'hold the line', 'managed realignment', 'advance the line','do nothing' options (as described in Chapter 2 Section 2.4).

The coastline was divided in cells as shown in Figure 3.3.

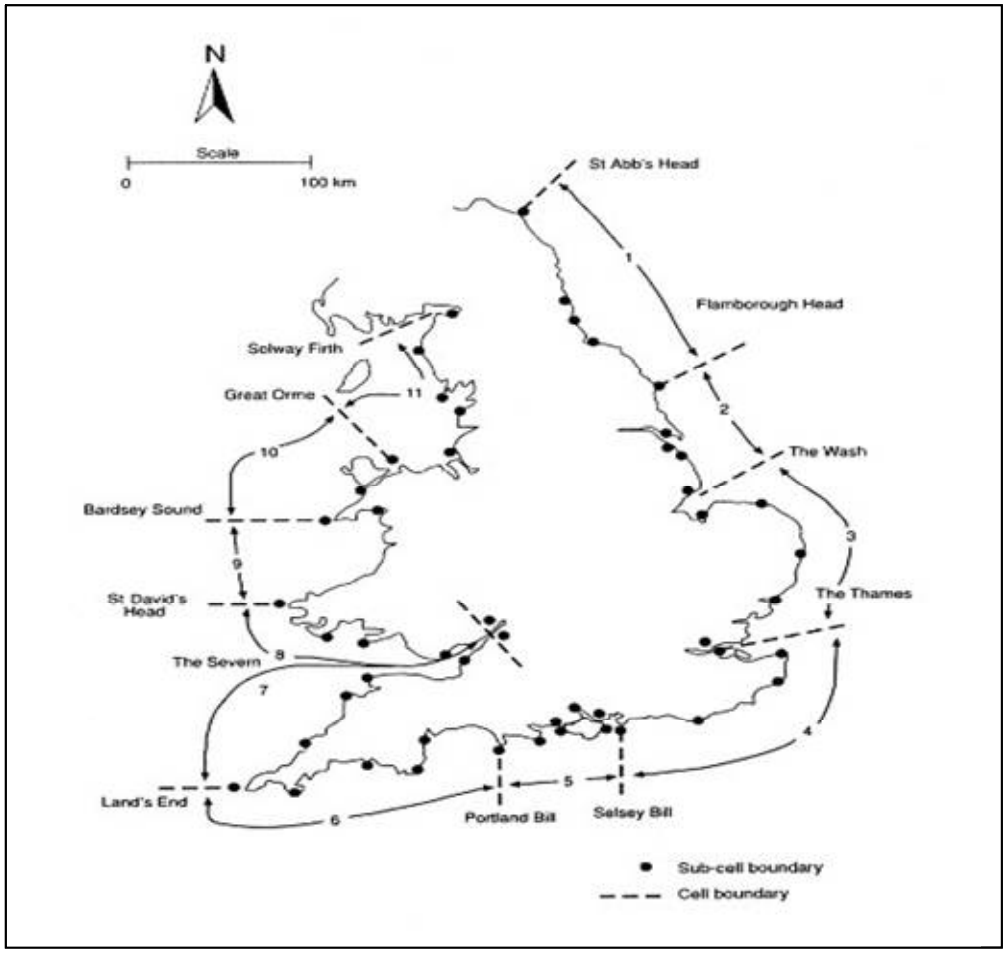


Figure 3.3 Sediment cells for Shoreline Management Plans. (Source: Google Maps)

Cells were produced by MAFF, using recommendations by H R Wallingford Ltd for relatively self-contained units within which there is a recirculation of material. There are 11 cells. Figure 3.3 shows the boundary of each of the sediment cells is usually a natural feature like a major headland or a river estuary. For example Flamborough Head is the boundary between sediment cells 1 and 2, and the Thames Estuary is the boundary between sediment cells 3 and 4. Each sediment cell is relatively self-contained as far as the movement of sand or shingle is concerned, so the actions taking place in one sediment cell would not be expected to have a significant effect on other cells. These cells are then divided into sub cells (of which there were 41 in SMP1, updated to 22 in SMP2) with independence from neighbouring cells for significant littoral movements and appropriate administrative boundaries (Potts 1999 p 487). The cells and sub cells for the original SMP1 are shown in Figure 3.4. The

SMP cell that contains the Suffolk Coast is flood cell 3c in the Wash to the Thames area.

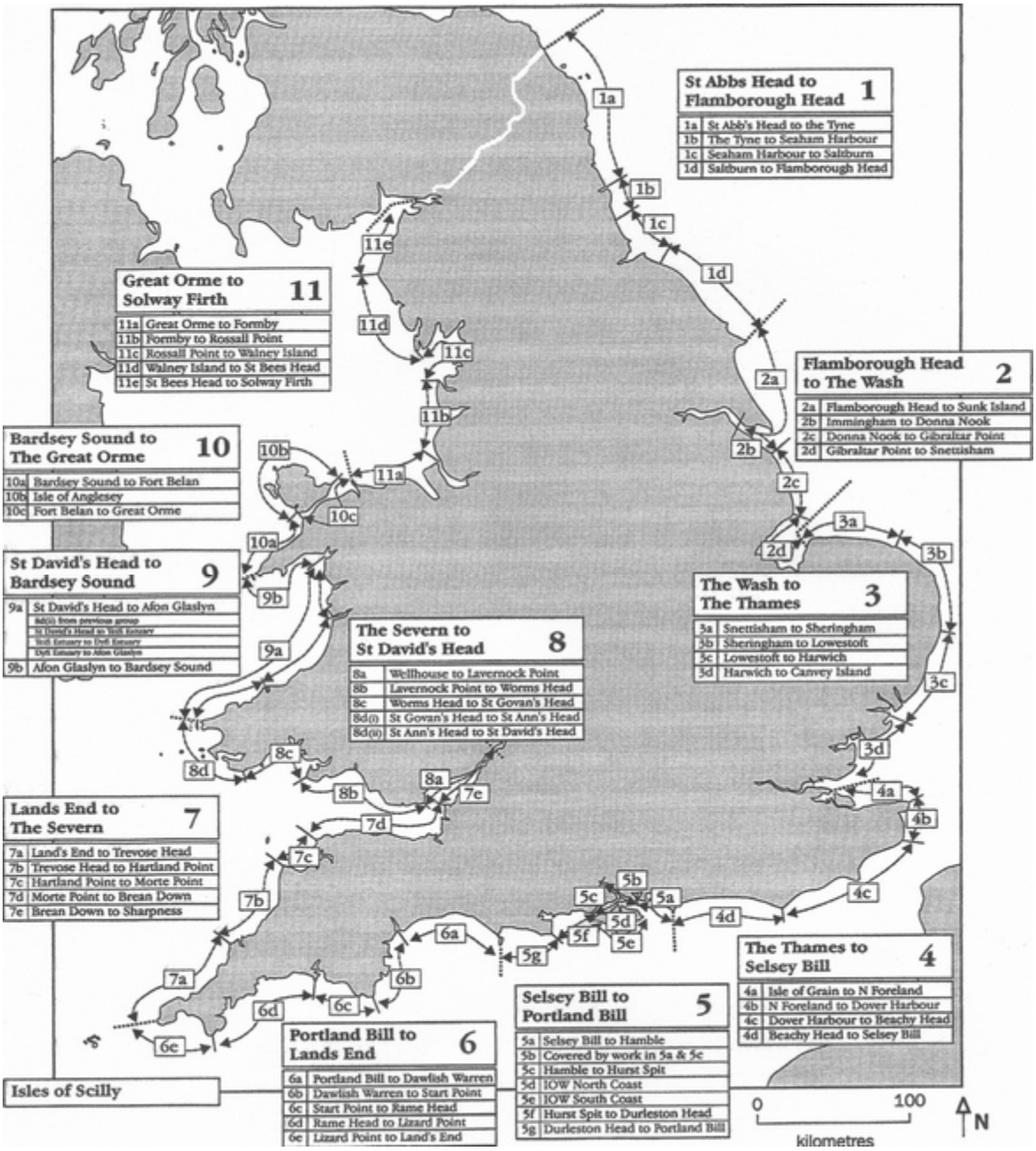


Figure 3.4 Sub-cells and Shoreline Management Plans for England and Wales for SMP1. Source: (Potts 1999)

Whilst Shoreline Management Plans are expected to inform statutory development plans and provide opportunities for continued consultation and participation of

interested parties (Potts 1999), there is some debate as to whether this is happening. It has been felt that many interested parties are not being consulted (NNDC 2004, Salthouse 2007). A Defra view in 2004 was that human intervention will not hold back natural processes, it will only delay them, and therefore be sustainable only over a short period of time (Defra 2004a). Current thinking is that the funds are not available to finance all but larger and most 'at risk' area schemes and that national funding is limited (Burch 2011; Thomas 2011).

The first generation of SMPs were produced from 1995-1999. Evaluation of a pilot of the second SMP (Sub Cell 3a) on the North Norfolk coast, led to the realisation that some of the policies were inappropriate. This has led to a conclusion that the SMP must be realistic and not promise what it cannot deliver (NNDC 2004). Changes to the previous policy recommendation of holding the line, which were included in an early Environment Agency Strategy Plan, and its replacement by a proposal to reconsider managed realignment, caused considerable local unrest, as with the EA Estuary Strategy recommendations in Suffolk at the same period.

The government had accepted that there were problems with the first generation of Shoreline Management Plans and produced subsequent changes in guidance (Defra 2004a; Defra 2006c). Reaction to the SMPs shows there is evidence of strong local preference to maintain the status quo that is to expect the Environment Agency and local authorities to 'hold the line' and not seek opportunities to accommodate natural processes, such as a managed retreat (realignment) option. The preference of local people to maintain defences and not want change was reported after the production of the South Downs and Northumberland SMPs (FOE 1997; Chaniotis 2007), as well as controversy after proposed changes to the Suffolk SMP 1 in 2003 (Smith 2003).

Projects such as the Foresight and FutureCOAST projects (King 2002) have improved the data for more informed production of SMPs but they have not helped their acceptance in the local areas they are designed for (O'Riordan et al. 2005). Few of the first SMPs have been adopted and some second generation revised plans are also in danger of rejection (Milligan and O'Riordan 2004). Stakeholders and the public must 'buy in' to the conclusions of the process and plans to make the strategy

effective (Milligan and O'Riordan 2004). Defra would like to see local authorities integrating SMPs into their Local Plans.

Research was carried out by the Tyndall Centre at UEA on an SMP2 pilot on behalf of a Steering Group that included representatives from Defra, English Nature, North Norfolk District Council and the Environment Agency to examine the existing governance of the Norfolk coast (O'Riordan et al 2005). Its remit was to see how the SMP could be improved by increased integration of policy changes and greater public involvement in decision making. Research was particularly directed at the determination of Shoreline Management Plans (SMP 3b) and the stakeholder engagement model it used. Some of the results indicated that there was a lack of a coherent cooperative approach between elected and statutory bodies, with little coordination between policy, funding or stakeholder dialogue. A more intensive approach to community dialogue was advised, that had been acknowledged in a report on the same study by English Nature. They stated that there was a need to train their staff in techniques to facilitate more effective dialogue (Milligan et al 2006).

3.4.5. Summary of strategies relevant to this study.

It can be seen that there has been a myriad of EU Directives, national legislation, policies and changing strategies that can affect coastal management and flood planning. An overview of these strategies has been necessary as many of the strategies can influence coastal flood management. In an attempt to identify which main plans and strategies have affected this study Table 3.6 states the plans and strategies, whether it has had its source in the EU, UK government or local providers of flood management and what effect it has on this research.

Table 3.6 Summary of the policies, plans and strategies and how they are relevant to this research.

Policy, Plans and Strategies	Relevance to this research
Public participation in plans and policies (EU2003/35/EC) (EU)	To include the public in decision making
Integrated Coastal Zone Management (ICZM) (EU Recommendation 2002/413/EC) (EU)	To integrate the views of local stakeholders and people in decisions about how the coast is managed.
Coastal Habitat Protection (92/43/EEC) Birds Directive 79/409/EEC and Coastal Habitat Management Plan (EU)	To view the balance of habitat protection and local attitudes to land use.
Shoreline Management Plans (Guidance 2001 and 2006) (UK)	To propose strategies for protecting the coast from flooding and erosion
Environment Agency Estuarine and Coastal Management Plans (2004 -) (UK and Local)	To propose strategies for protecting the coast and estuaries from flooding
Land Use Plans (2004) (UK)	Building or not building on flood plains and protecting land from flooding
Making Space for Water Strategy (2006) (UK)	Who makes the decisions about flood management and therefore with whom local people should engage.
Floods Directive(2007/60/EC) (EU)	Produce Flood Risk Maps that should be available to the public by 2013 (not produced for the Orford during the time of the research)
Marine and Coastal Access Act (2009) and Marine Spatial Plans (UK)	Access to the coast could be an issue for local people
Flood and Water Management Act (2010) (UK)	County Councils have more responsibility for flood management.
Water Framework Directive and River Basin Management Plans (implementation by 2015) (UK)	To control the effects of flooding in river catchments with a potential overlap with estuarine area planning

Table 3.6 along with more detailed explanations in this chapter, have outlined the contextual drivers for local responses, especially by the Environment Agency and

local councils. The following sections explain how the Environment Agency and the local district council have approached participation in the local area of the Alde and Ore and Deben estuaries of Suffolk.

In these estuaries there is considerable interest by local authorities and the Environment Agency to include people in active participation due to past problems with delays in the Alde and Ore area of Suffolk. The Environment Agency is also displaying an increased willingness to seek new ways to involve more of the local Deben Estuary population. A consideration of the methods and processes used in planning opportunities for participation is therefore very important to dispel perceptions that there is a 'compliance tick box approach', which can lead to participants becoming disenchanted and disengaged (ODPM 2004c). The problems caused by flooding have national implications but it is at local levels of management that more effective involvement of local people in flood planning is possible.

3.5. Local level management

The national policy for coastal planning has been described in the previous sections. It is important to consider national planning and strategies first because this is the context in which local flood planning takes place. It would seem to be more sustainable to have a national strategy in place before addressing local issues (Mckenna et al. 2008). However it could be argued that there needs to be equality and a balance between national and local strategies. It is local plans that will have a more significant effect on involvement of the public in coastal flood management. Examples of local level management in the study area are discussed in this Section. 3.5. Coastal Partnerships in Section 3.5.1, Environment Agency Strategy Plans in Section 3.5.2 and a Local District Council 'Futures' Project in Section 3.5.3.

3.5.1. Coastal Partnerships

Coastal partnerships show considerable variation, from those small in size, such as the 'Isle of Wight Estuaries Partnership', which has habitats and tourism as major concerns, to the 'Thames Estuary Partnership' with the multitude problems and possibilities of London (see Figure 3.5). In the east of the map in Figure 3.5 is the

Suffolk Coast and Heaths Unit (SCHU), which is the partnership involved in the Environment Agency Suffolk Estuaries Strategies. However in the last ten years two further partnerships have developed alongside the SCHU since the Map was produced in 2006 by Defra, when there were 33 coastal forums. The later list of 'Coastal Initiatives' in the UK reached 95 (Stojanovic and Barker 2008). This list included the 2004 Estuary Planning Partnership for the Alde and Ore (EPP to become AOEP in 2012). The list does not include the recently formed Deben Estuary Partnership in 2009.

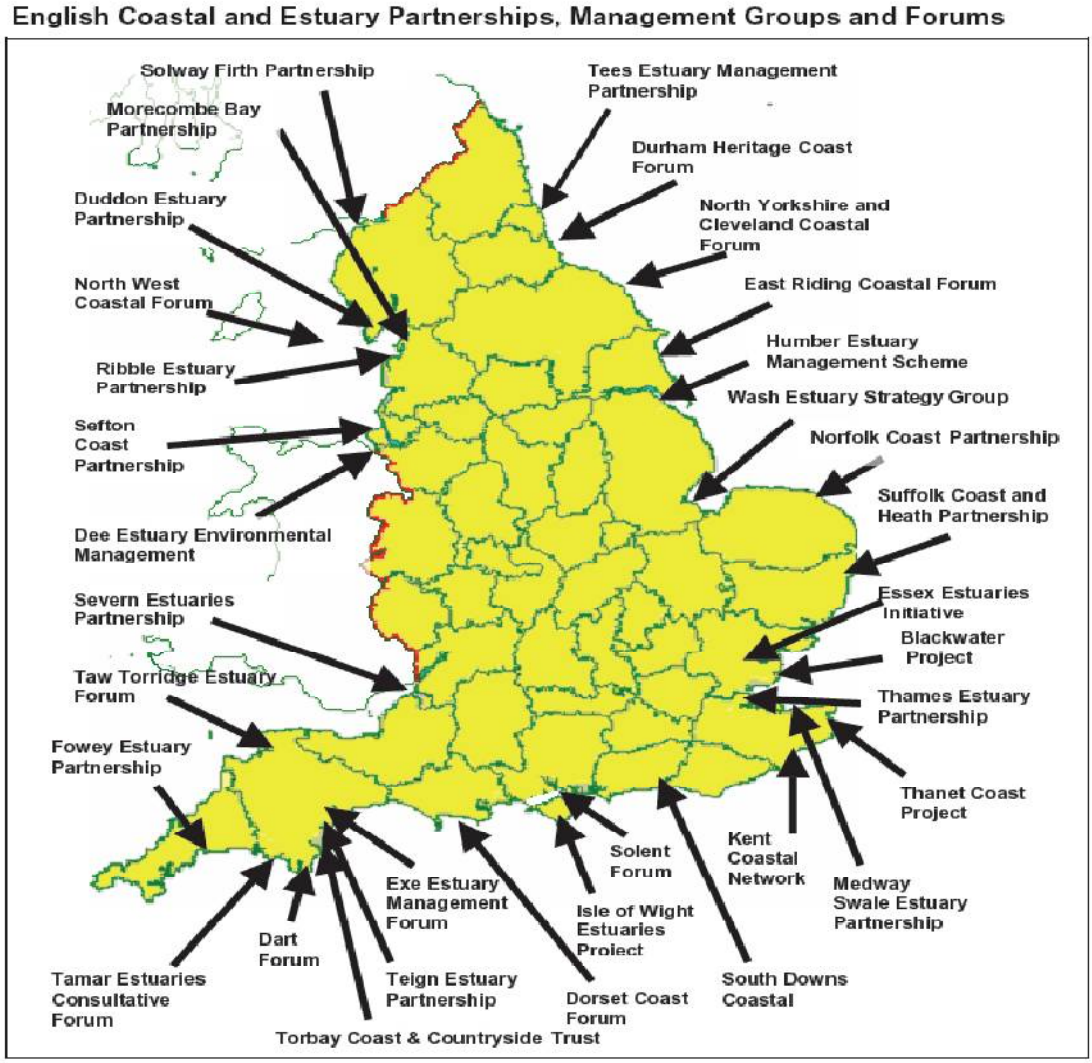


Figure 3.5 Coastal Partnerships. Source Defra 2006a p.21.

(Note: Severn Estuaries Partnership should be Severn Estuary Partnership)

All the partnerships in England have formed voluntarily, with no statutory powers, and have developed their own decision making processes. Coastal partnerships have been adopted by many groups concerned with coastal planning (Fletcher 2004; Morris 2004; Morris 2008).

Partnerships are not always sure about their role in delivering government policy. Responses to a Defra Consultation about the role of coastal partnerships in 2006 elicited a response from the Suffolk Coast and Heaths Partnership Unit (SCHU) coastal partnership. This management unit of the Suffolk coast 'Area of Outstanding Natural Beauty' (AONB) reported that they felt the Defra document lacked an overall vision. The Group also felt that there was no single decision maker who was accountable. The emphasis on a 'coastal partnerships' solution was no solution because they had no teeth or funding to carry out ICZM effectively (SCHU 2006). The experience of the management team of the Suffolk AONB had been that a local Environment Agency Strategy for flood risk in the Suffolk area had virtually ignored social, economic and political considerations. It was felt by SCHU that where consultation by the Environment Agency had taken place in this area of Suffolk, it had been poor. Effective governance was thought not to be evident and this had resulted in significant local resistance to Environment Agency plans for this stretch of the coastline (SCHU 2006).

SCHU at that time stated that there was no real mention of the role of coastal communities. When they were included in the consultation there was little feedback or a consideration of the need for ongoing support. It was felt that consultation was often a one-off affair whereas relationships needed building and a momentum of involvement kept up, which takes time. The complexity of who makes decisions within the coastal area needs to be understood if coastal communities are to effectively have an influence on decisions. If planning is to be sustainable, the involvement of local people is essential. It is thought by SCHU and others that coastal partnerships have a vital role to play in the development of the coast (Fletcher 2002, Midgley 2004, Stojanovic and Ballinger 2009, Ballinger et al. 2010). Fulfilling that role will inevitably vary in different parts of the country that have different flood management needs and local specificity.

The structure and organisation of coastal partnerships also can greatly vary (Fletcher 2002; Scottish Executive 2002). A common feature however is that they have multi-stakeholder management groups, sometimes supported by a steering group (as described in the example of the Estuary Planning Partnership for the Alde and Ore below), or by a Board of Directors supported by a wider group, used for consultation on issues that allows for inclusion of all stakeholder interests. Research by Fletcher (2004) found that there were absences in representation from key stakeholders, such as the local planners, businesses and community members. Several ICZM principles were therefore not being achieved, such as participation in planning and involving all the key stakeholders. ICZM is also regarded as a weak strategy because it has relied on voluntary partnerships with little advice on how to involve stakeholders.

Due to their voluntary status, coastal partnerships have no power to determine the work of other competent authorities with responsibilities on the coast, such as the Environment Agency or Natural England. However, Defra representatives have reported that the Partnerships do have a role to deliver local solutions for local specificity as required by EU recommendations for integrated management (Morgan and Whaley 2007). There are disadvantages to local specificity in that local self interest can be at the expense of the public good (McKenna, Cooper and O'Hagan 2009). However there is also the counter argument that local people can help solve (or fund) their own local problems, as seen in the developing plans for the Alde and Ore and Deben Estuary in Suffolk and the response of the people of Happisburgh in Norfolk, significantly the efforts of the Happisburgh resident Malcolm Kerby, who has done much to raise the issue of local involvement in coastal erosion (McKenna, Cooper and O'Hagan 2009).

There are practical problems with consulting with every citizen; the solution is often to use representatives of, for example, organisations such as community councils, residents associations, sailing clubs and youth groups (Scottish Executive 2002; Lohoar 2010; Mayer 2011). However, this may not be the most successful or only way to engage the citizenry in general. The great advantage of the voluntary partnerships was that they were seen to be independent and therefore perceived by local people as being more trustworthy (Scottish Executive 2002). Their perceived

impartiality also meant that they could act as 'honest brokers' between statutory bodies and others (McKenna and Cooper 2006).

Partnership working seems to have become more common. The idea of using coastal partnerships for their expertise in consultation and access to local contacts has been considered by Defra (2007b) and does appear to be a way to enable agencies and affected parties to work together. A new partnership that has developed as a result of the acceptance problems of a new strategy proposed by the Environment Agency in 2004, is an area Planning Partnership for the Alde and Ore Estuary in Suffolk. This partnership is unusual in that it was formed in response to local objection to the changes to the first Shoreline Management Plan for the area, the stimulus for this research. However, like many other partnerships around the coast it has had the support of the local authority. Suffolk Coastal District Council gave some start up funding.

The Alde and Ore Estuary Partnership was a response to a change of policy in the Strategy Plan outlined in the introduction to this research. Initially the Manager of the Suffolk Coast and Heaths Unit AONB issued an invitation to a team of experts to assess the perceived problems of non acceptance of the SMP strategy change, and suggest solutions. The manager of the AONB knew about the scheme and thought it would allow a neutral assessment of the needs of the area. The Exchange Programme comprised a group of experts in countryside management, from North America and the UK. The group concluded that the local population ought to be more included in decisions about flood management along the coastline around Aldeburgh and Orfordness Spit (see Figure 1 for location map).

One of the recommendations from the group was the formation of the Alde and Ore Estuary Planning Partnership (EPP). The Partnership formed consists of a Steering Group with representatives from varying stakeholders that include: English Nature, now Natural England; The Environment Agency; Suffolk Coastal District Council (now represented by Suffolk Coast and Heaths Unit); Land Owners (including farmers and the National Trust); local businesses; town and parish Councils; the pressure group The Alde and Ore Association; local sailing clubs and a ramblers group. A group called 'Friends of the River' which carried out an economic survey

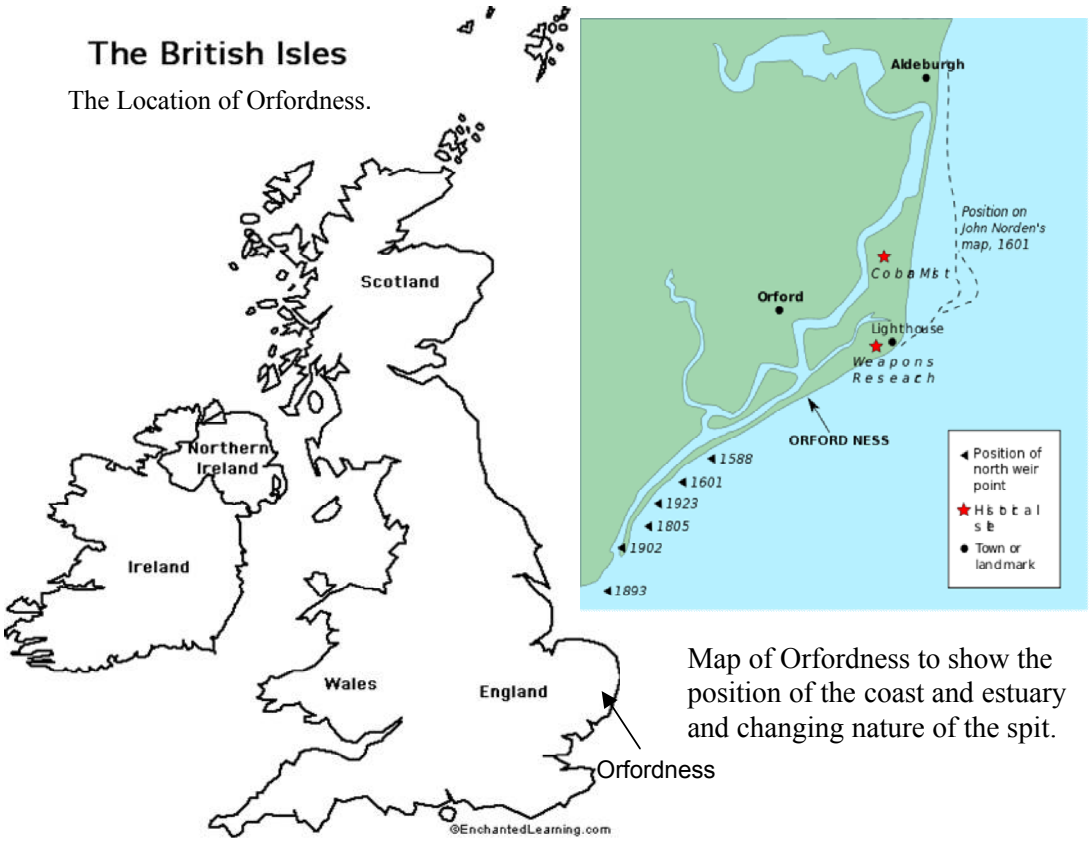
of the estuary was also part of the initial steering group. The wider group for the partnership numbers over 50 organisations and contacts. The Estuary Planning Partnership of the Alde and Ore, initially formed in 2004, was in the process of reforming in 2012 to enact the action plan results of a local consultation carried out by Suffolk Coastal District Council with the support of the Environment Agency, the 'Futures' Project described in Section 3.5.3.

A more recently formed partnership in 2009 is the Deben Estuary Partnership (DEP), which is working in Suffolk and organised by a local District Councillor and the Suffolk Coast and Heaths Unit. The main aim of the DEP is to engage local people in its estuary plan, to enable them to become more aware of, and take part in the planning in projects to: rebuild the river walls; encourage the development of salt marsh in the river; and generally manage development of the area. This work is experimental and as well as producing a plan to manage many aspects of the estuary it includes a project to engage more local citizens in flood management. The DEP is said to have 'grown organically' stimulated by a project to defend a part of the Suffolk coastline at East Lane. They funded a coastal defence scheme largely from money from the sale of local farmland for housing (Block 2011), described in Section 2.5 and reported in the local press as an 'innovative new scheme' (Smith 2008). The DEP group differs from another local partnership for the south Suffolk estuaries for the Alde and Ore (the EPP, now AOEP), in that it does not have permanent statutory authorities on its management groups. The emphasis is for the involvement of more parish councils, landowners and local people. Expertise and help will be sought as has been offered in collaboration with the Environment Agency, Natural England and those responsible for permissions for decisions, such as Suffolk Coastal District Council and Suffolk County Council. Projects are planned and funded by the group, which is where this type of local inclusion could be different from what happens elsewhere (Astley-Reid 2012). In the past the Environment Agency has usually planned work for the walls, involving Natural England and local authorities for habitat and planning guidance. Planning instigated by this local group is therefore a new and possibly developing management solution. Developments in this partnership are reported in Section 6.4.

3.5.2. Environment Agency strategy plans

The Environment Agency (EA) is in the process of producing Strategic Plans for the coastline of the United Kingdom for the next 100 years. One such Strategy Plan is work on the Suffolk Estuarine Strategy (SES), which has been developed due to EA concerns about the susceptibility of some areas of coastal Suffolk to tidal flooding since 2004. The EA is continuing the process of developing long term strategies for the estuaries of the Blyth, the Alde and Ore and the Deben rivers. Concern by the Agency has been heightened due to deterioration in flood defences (possibly due to some lack of maintenance), which has resulted in their poor condition and effectiveness. The Agency also wanted to provide a sustainable solution for the each of the Suffolk estuaries and the coast (Environment Agency 2004).

The strategy began with a focus on the estuaries (Suffolk Estuary Strategy or SES), but it recognised that each estuary could not be considered in isolation from the coast. This led to an amalgamation of the estuarine and coastal strategies. One such example of strategy merging was for the estuary of the Alde and Ore rivers and the adjoining coastal area that included Orfordness Spit. This became the Aldeburgh Coast and Estuary Strategy (ACES). The coastal strategy work also overlapped with the update of the Shoreline Management Plan. The merging of the estuary and coastal strategies became necessary because of the special conditions of the Orfordness region of Suffolk, where the coast and estuary are only separated by a narrow and changing spit, and therefore plans for both had to be considered together (see Figure 3.6).



Map of Orfordness to show the position of the coast and estuary and changing nature of the spit.

Figure 3.6 Map of Orfordness and its location in the British Isles. (Note: The scale of Orfordness Spit is fifteen kilometres, twelve miles in length at the present day. The length has varied over time. Source: Parker 2010; Defra 2013)

The preferred way of disseminating information to stakeholders and the public by the Environment Agency for the SES strategy, has been to hold exhibitions in local towns and villages to widely distribute information documents. However a local communication group (The Planning Partnership for the Alde and Ore Estuary, EPP) suggested holding Special Interest Groups, which were meetings between local businesses, parishes and land users with the EA and its consultants.

One EA representative thought that some people at the meetings did not understand the proposals and wanted information that was not available. He also felt the public was resistant to any change (Steen 2005). However EA representatives also thought that the meetings were beneficial because a major aim of the consultation was for the EA to 'take people with them', and they were trying to be as inclusive as possible to build relationships. The 2004 EA Strategy Plan for the estuary of the rivers Alde and Ore was presented in 4 stages:

Stage 1 - Management options were presented

Stage 2 - Consultation on options with local organisations and groups

Stage 3 - A shortlist of options, none of which were enacted

The strategy stalled at this stage

Stage 4 - A preferred option was selected.

The Alde and Ore SES Strategy proceeded as far as Stage 3 by 2006 but stalled for various reasons, the main one being that it was essentially a hydrodynamic study for flood protection and did not take into account the environmental impacts and socio-economic costs (EPP 2009). More recent 'Pathfinder' project examples funded by Defra, also found that local communities stressed socio-economic considerations as the most important in the early stages of flood planning (Barratt 2011).

The 2004 SES Strategy was also heavily criticised by a local pressure and interest group, the Alde and Ore Association. They commissioned an independent report from a consultant to 'check' Environment Agency data and conclusions (Pye 2005). In contrast it was thought by one EA officer involved that the process was 'at the cutting edge'. It shared modelling with local people and had increased levels of consultation in the Interest Group Meetings (Steen 2005). At that time there appeared to be a mismatch in perceptions of the EA officer and the Alde and Ore Association.

Problems also occurred in September 2007 when the draft strategy for the Blyth Estuary in Suffolk was published. 'Drop ins' by the Environment Agency and its consultants were carried out in local village and town halls to explain the strategy. The result was a protest on the beach of local people in SOS formation, pictured and referred to in the introduction in Chapter 1. A response from Suffolk Coastal District Council was equally negative. It was suggested that again Defra and the Environment Agency had not considered socio-economic criteria. A cost benefit analysis had been needed and local responses were not considered. The policy of no active intervention in parts of the estuary was unacceptable, government funding was needed for the flood protection and the plans needed to have wider consultation with the Countryside Land Agency (CLA), Natural England (NE), Suffolk Coast Against

Retreat (SCAR) and the National Farmers Union (NFU). One District Council's officers' response was that there was much room for improvement in the EA strategy process (Davies 2008).

The opposition to the Blyth Strategy had led to delays in reporting on and restructuring of the other Suffolk Estuary Strategies, especially in terms of consultation processes. The EA has concentrated until recently, 2011, on survey work and input into the SMP2 update in March 2010. Crest level surveys of the river walls have been completed by the EA and reported to local partnerships (EPP 2009). There were also the first serious concerns by the EA and others, who realised that funding for local projects was not going to cover the costs of maintaining the river and sea walls should some suffer overtopping and damage, as identified by these surveys. This has led to a focus and change (from Defra) in calculating the costs (Allam 2011). There is little grant in aid money from Defra for this part of the coast (see Section 2.5).

The likelihood for funding for the Alde and Ore River area by the Environment Agency Strategy was set out as a summary in a booklet produced as a joint consultation project between the EA and Suffolk Coastal District Council, the 'Futures' project, described in Section 3.5.3. The assessment for each flood cell along the river concluded that of the sixteen flood cells, or part cells identified (see Table 3.7), only parts of two flood cell areas in Area FC 10n and 10s (see Figure 3.7) are likely to get central government funding. Six cells will get part Central government funding, with part local funding (Flood Cells 2, 4, 6/7 and two parts of 10s). Three cells will initially get support from central government (Flood cells 3, 5 and 9) then funding is likely to revert to local funding in the future. Five cells (Flood cells 1, 8, 11, 12 and 13) will have to find local or other organisation funding (see Figure 3.7 for the location).

Figure 3.7 Flood Compartment and Cell Map of the Alde and Ore Estuary

(Source: Managing the Coast, Suffolk Coastal District Council.)

Table 3.7 Flood cell compartments in the Alde and Ore area showing likely funding sources (includes the village of Orford)

Flood Compartment	Name	Likely funding source
FC1	Boyton and Butley Marshes	Local or other organisation
FC2	Butley Mills	Part central government, part local funding
FC3	Chillesford Lodge Marshes	Support from central government initially, likely to revert to local funding in the future
FC4	Orford with Gedgrave and Sudbourne Marshes	Part central government, part local funding
FC5	Iken Marshes	Support from central government initially, likely to revert to local funding in the future
FC6/7	Snape and Langham Bridge	Part central government, part local funding
FC8	Ham Creek Marshes	Local or other organisation
FC9	Hazelwood Marshes	Support from central government initially, likely to revert to local funding in the future
FC10n	Thorpeness and Haven Marshes	Central government
FC10s	Aldeburgh Marshes	Part central government, part local funding
	Aldeburgh Town frontage to Slaughden	Part central government, part local funding
	Aldeburgh sea defences to Sudbourne Beach	Central government
FC11	King's and Lantern Marshes	Local or other organisation
FC12 & 13	Havergate Island and Dovey's Island	Local or other organisation

The consultation for these proposals has been integrated in the local district council 'Futures' project in a questionnaire that asks local people about: the quality of information given about managing estuary and sea walls; the likelihood that respondents could become more involved in the river and sea defences, and in what

way; identification of areas for maintenance with a greater priority; ideas for the protection of communities beyond the next 20 years; and whether respondents would be interested in working to help raise funds to manage the future of the Alde and Ore area (Parker 2011). Comments on the engineering and hydrodynamic option proposals are not directly asked for, as this was in the 2004 Environment Agency Strategies for the Suffolk Estuaries. The responses in the 2011 consultation simplified solutions in the first instance to wall maintenance, sea defences and beach replenishment. The results of the 'Futures, Managing the Coastline' consultation were published in 2012 and have resulted in the newly formed Alde and Ore Estuary Planning Partnership (AOEP) that is undertaking to forward flood management planning for the estuary in partnership with the Environment Agency. The composition of the Partnership has been modified from that described in section 3.5.1 and has included a more significant role for the Alde and Ore Association.

3.5.3. Suffolk Coastal District Council ICZM 'Futures' Project.

At the end of 2008, Suffolk Coastal District Council appointed its first Integrated Coastal Zone Management (ICZM) Officer. The officer appointed had been working in the estuaries area for a few years before this appointment so had experience in the difficulties of understanding the complexity and problems with integrating coastal plans. A crucial challenge was getting people to initially engage with, and possibly become involved with these plans.

Various ideas had been offered as ICZM initiatives in projects such as 'Coastal Life', a proposal based on discussions with the Tyndall Centre at the University of East Anglia, Norwich and the Suffolk Coast and Heaths Unit AONB (Parker 2006). The project was intended to explore a new way to work with stakeholders. Support and funding was needed from the political and voluntary establishment, the public sector management agencies, relevant local authorities and the community affected. The proposal meant discussing ways to involve organisations and communities in innovative ways. Examples proposed were: the development of best guess scenarios, computer generated visualisations, workshops and involvement with local schools. This proposal has since developed into others detailed below.

In 2007 a further attempt at stimulating debate and proactive engagement produced a discussion document 'Taking the Initiative' (Parker 2007) that was sowing the seeds towards the 2011/2012 'Futures' initiative. The development of topic groups, such as landowners, parish councils, businesses and environmental groups were proposed and become a feature in the new project. The present strategy for involvement with the local communities has therefore followed a developmental path and it is only with the support and funding of the Local District Councils (Suffolk Coastal and Waveney), Suffolk County Council, Suffolk Coastal Local Strategic Partnership, Natural England, Suffolk Coast and Heaths AONB, the Estuary Planning Partnership of the Alde and Ore and the Environment Agency which has dedicated the time of one of their experienced communication officers, that the combined project has taken place.

The 'Futures' project that had the aim of having meaningful 'conversations' with the public, started work in April 2009 with its first Steering Group Meeting. The project held two community conferences. The first was to identify what people thought was special about the area and specify issues. Issues identified had a broader range than just flood management. The second conference reported on the issues and discussed these in Topic Groups that included Landowners and Fishermen, Communities, a Cultural Art Group, a Business Group, and an Environmental, Recreational and Access Group.

'Conversations', as the consultation was called, were planned to be carried out across the region from July to September 2011. Public drop-ins occurred in village halls (with about 20 people in each). Flower shows, fun days and a food and drink festival were also attended with information about the project. These conversations with the public culminated in a set of booklet brochures that outlined the work of the Topic Groups and their findings for comments. Three booklets were produced and widely distributed in the area, one booklet was for community issues, one for building the local economy and one for managing the coastal environment.

The Flood Management Strategy for the Alde and Ore rivers devised by the Environment Agency was incorporated into the 'Futures' process and presented in the Managing the Coastal Environment booklet to explain and ask for comments on

the plans for flood cells and their funding. An adapted version is shown in Figure 3.7 and Table 3.7. The results of the answers to booklet questionnaires have been analysed and evaluated. The response was 300 written responses to the booklet questionnaire and 700 people contacted at local events who made comments in the 'conversation' about how the estuary should be managed. The project at the very least has demonstrated a way to gain the views of the local population. The outcome and possible ways forward for this project are discussed in the Conclusion Section 6.4.

3.6. Conclusion and derivation of research questions

This Chapter has reviewed the history of legislation and planning for coastal management that affects flood planning and current responsibilities for decisions about coastal flood protection. Responsibility still lies mostly with local authorities, the Environment Agency, internal drainage boards and landowners. However the degree to which they are responsible is described as being subject to change. There are also new management models emerging in the Suffolk coast area, such as the new Alde and Ore Estuary Planning Partnership (AOEP), that has been reformed to enact the plan that emerged from the 'Futures' project, and the Deben Estuary Partnership that is engaging in a new working relationship with the Environment Agency, referred to in Section 1.3.1 as 'co-learning' by Keene (2005) and in Section 1.3.3 by Weber and Tuler (2006) as 'Informed Collaboration'.

There are obvious issues with integration of plans produced by different organisations and agencies and their success in making their plans accessible and understandable to local people. How far they have been effective in enabling the understanding of, and involvement in, their plans, which in this study mostly relates to the Estuary and Coastal Plans of the Environment Agency, River Basin Management Plans, Coastal Habitat Management Plans, Land Use Plans and Shoreline Management Plans for this part of the Suffolk coast, are aims of this research (see aims 2 (i) and 2 (ii) in Section 1.3). The methodology for the research is discussed in the next chapter but justification for the research approach and research questions are introduced here.

The possession of certain knowledge, in this instance relating to the causes of flooding and consequences of flood management, reviewed in Chapter 2 and responsibilities for coastal and estuary flooding (described in this chapter), is thought to have an effect on whether local people will be, will want to be, or able to be, involved in decisions about flood management in the area in which they live (Steen 2009). A common perception about local populations, especially by scientists, is that they lack understanding of the issues involved (Bodmer 1985; Sturgis and Allum 2004; Johnson and Chess 2006; Lorenzoni et al. 2007)

There has been much debate about the 'information deficit' characteristics of some local people. To some extent it is proposed as the reason why they do not understand, or are unable to become involved in decision making about complex scientific problems (Miller 2001; Dickson 2005). There are indeed flaws in the information deficit model. The fact that people have a lack of adequate knowledge about science (Sturgis and Allum 2004; Dickson 2005), cannot always be solved by simply providing scientific information, as the model suggests. However not being given the background information is also not going to help them understand the issues. Finding out where people get their knowledge and information from, and where they might prefer to obtain it, could help understand and resolve some problems with information deficit.

Lack of understanding by scientifically illiterate people can also cause irrational fears (Sturgis and Allum 2004) and affect how they respond to flood management issues. A fear of flooding can be perceived as a personal or social problem. It may be that more personal awareness of a threat makes people more motivated to become involved. It is also proposed that understanding is crucial to know what needs to be done (Habermas 1987). An increase in knowledge can mean an increase in concern (Dickson 2005). The very fact that different people have different degrees of knowledge make it unlikely that they will all go about the business of making up their minds in the same way (Sturgis and Allum 2004). Therefore to find out about these differences may help to identify different ways to understand motivations and encourage more people to become involved.

It has been a criticism levelled at some communicators like those in the Environment Agency (EA), who have to explain policy options and decisions to the public that they need to be more aware of the nature and existing knowledge of the intended audience (Johnson and Chess 2006). The EA consultation strategies are constantly under review to make them more understandable to the lay public (Steen 2009), and when not successful can cause rejection and stalling of strategy proposals (see Section 3.5.2). Therefore testing the knowledge of the local population in their understanding of the causes and consequences and responsibilities for coastal flooding and flood planning is a key aim of this research leading to the first research question:

Research Question 1: What knowledge does the local population have of the causes, responsibilities and management of coastal flooding?

This research question also addresses Research Aim (i) To measure knowledge about flood management (see Section 1.3).

To explore the idea of involvement behaviour being affected by degrees of knowledge, the research will examine the possibilities of links between the knowledge of coastal flooding and the tendency to take any action and become involved in the plans and policies to allow and/or prevent it. It is also thought that a willingness to be involved with organisations may be a predictor for involvement in local flood issues and planning. There is some theoretical justification offered by Ajzen (1991), in his 'Theory of Planned Behaviour' that proposes that people will act if they have past experience and knowledge, if they are encouraged by friends, and it is not too difficult for them to do so. Ajzen (1991) thinks that a willingness to be involved may be due to involvement with other organisations, hence the questionnaire in this study asks people to state organisations they are involved with. He proposes that at a basic level, behaviour is a function of the amount of information a person possesses. Therefore testing the amount of knowledge people possess may be an indicator of involvement behaviour. The research will ask questions about the amounts of involvement people have in the plans and meetings of organisations and agencies concerned with flood management.

As stated it is individual action that will be the main focus of this part of the research, as the link between action and knowledge can be seen more directly. There may be little incentive for collective action (Blake 2001), and a tendency for individuals not to engage with social capital and networks but to 'bowl alone', an idea proposed by Robert Putnam (Boggs 2001). The preference for bowling alone can lead to greater social fragmentation and reliance on other people to plan for safety in, for example flood protection planning. The study of the amount of local involvement could give insights into what types of flood management involvement people currently have, which leads to the research question:

Research Question 2: What involvement do local people have in coastal flood management?

This Research Question also addresses Research aim 2 (ii) -- To measure the amount of involvement in flood management (see Section 1.3).

The answers to Research Question 1 and 2 also help to answer Research aims 2 (iii) -- To explore any relationship between knowledge and involvement, and 2 (iv) -- To explore any similarities and differences between people with different levels of knowledge and involvement.

If there is a relationship between knowledge and involvement it is not going to be simply one causing the other. There is much complexity in trying to explain the causes of social behaviour (Silverman 2001), hence the need for further investigation. Any possible links between knowledge and involvement will need further exploration and are sought in this research.

There will be issues, other than the amount of knowledge people possess that will prevent local people becoming involved in flood management and its planning process. These issues will form barriers to involvement. Barriers to participation have been identified in other research, and are discussed in Chapter 1 Section 1.2 and 1.3.1, 1.3.2 and 1.3.3.

Barriers have been discussed in the research fields of:

- behavioural motivation (Ajzen 1991)
- conditions for empowerment (Singh and Titi 1995)
- environmental concern and link to action (Blake 1999)
- use of local knowledge (Haines et al. 2002)
- attitudes of environmental workers and planners (Johnson and Chess 2006)
- the process of participation (Dalton 2006, Webler and Tuler 2006)
- engagement with climate change (Lorenzoni et al. 2007).

Barriers can be multivariate and as different in combination as any individual's knowledge, experiences and preferences. However it is hoped that patterns in problems and preferences for ways towards more effective participation in flood management by the local population can be identified and has prompted the question:

Research Question 3: What are the barriers that local people have to participation in coastal flood management?

This Research Question helps to answer Research aim 2 (v) -- To determine the barriers that people say they have that affects their participation in flood management and 2 (vi) To assess any problems that people may have for present processes (see Section 1.3).

In the final part of the research, solutions to overcome identified barriers to participation in flood management are sought that would hope to address some of the problems identified in the review of the literature. Such as:

- Issues with the idea of landscape change, both natural and due to flood management strategies (Pettit 1999, Myatt et al. 2003, O'Riordan et al. 2005, Thomas 2011)
- Issues with scientific uncertainty (Kay and Alder 2005, Whitmarsh 2008)
- A consideration of behavioural drivers (Johnson et al. 2003)

The research aims to answer some of these problems from the 'bottom up' by asking questions and analysing responses of local people to identify their problems and

preferences for participation in coastal flood management. This has prompted the question:

Research Question 4: What ways and methods can be identified to improve participation in coastal flood management?

This Research Question helps to answer Research aim (vii) – To propose recommendations from the study that could facilitate an improved process of public participation in flood management (see Section 1.3).
Research aim 2 (viii) is found in the conclusion that discusses future research needs.

The methodology to answer the research questions follows in Chapter 4.

Chapter 4 Methodology

4.1. Introduction -- The problem being addressed by this research

The change in policy from a 'Hold the line' solution to other flood management strategies such as 'managed realignment' or 'no active intervention', the 'do-nothing' option, prompted some local people to become concerned about the changes proposed. To address the problem effectively there is a need to engage with as many people as possible who currently have an interest, or who may be concerned in the future, about the maintenance or development of coastal and estuarine defences. Reactions to the changes above and reasons for including local people in flood management decisions are discussed in Chapter 1. Chapters 2 and 3 have outlined the background to changes and form knowledge to enable a questionnaire to be constructed about coastal flood management. The first three chapters of this thesis constitute an understanding of some of the complexity of issues that affect coastal flood management.

This chapter begins with a justification for the methodological approach (Section 4.2) that leads to iteratively constructed data. There follows an explanation of: the research plan and design (4.3); followed by descriptions and explanations of the questionnaire rationale and design (4.4); questionnaire follow-up interviews design (4.5); methodology and justification for using Q (4.6); justification for follow up interviews post Q Sorts and Analysis (4.7); and workshop design and methodology (4.8).

4.2. Justification for the methodological approach

A methodology sets out an approach to analyse what can begin as a paradigm. A paradigm can be an expression of a system of beliefs and practices that influence how a researcher selects both the questions to study and the methods used to collect data to answer them (Guba and Lincoln 1994). In this instance it stems from the researcher's preference for pragmatism and a practical approach to problems.

Fundamentally there are two epistemological approaches to gain knowledge through research: that of the knowledge gained from study of natural sciences, which has a more positivist ontology, and that associated with the social sciences, which has a more constructionist approach. Positivism essentially uses the methods of natural sciences and scientific method to construct theories. When this approach is used with social science issues the social phenomena have to be observable, and there is much emphasis on the deduction of theory (the testing of theory) from facts. In contrast, constructivism asserts that to explain social phenomena, knowledge is often socially constructed from inductive methods (observations that construct theory). Knowledge is acquired by explanation and there is more emphasis on observation of the normative as opposed to scientific deduction (Bryman 2004).

There is debate as to which of the two approaches is best at constructing or answering research questions (Johnson and Onweugbuzie 2004). However, Johnson and Onweugbuzie (2004) contend it is by a mixture of methods that a practical and outcome-orientated result can be obtained and better help answer research questions. It is a combination of the ontological approaches of both positivism and constructivism that will be used in this research in a paradigm identified by (Cresswell 2003) and explained by (Morgan 2007) as a pragmatic approach. The researcher favours critical realist ontology with a pragmatist epistemology. In pragmatic research as explained by Morgan (2007), the main emphasis is on:

1. actual behaviour (‘lines of action’)
2. beliefs that stand behind those behaviours (‘warranted assertions’)
3. consequences that are likely to follow from different behaviours (‘workability’)

(Morgan 2007).

The main aim of this research is to assess ways to improve the participation of the public in coastal flood management. Key factors in this aim are to find in what ways and why people are, or are not, participating. This means: assessing what organisations they are involved with and what meetings they attend (‘lines of action’) and why they attend or do not attend those meetings. It is also felt important to seek other reasons than lack of attendance at meetings and assess the significance of lack of knowledge or other barriers to involvement (‘warranted assertions’); and

whether people are likely to want to get involved in the future, if so in what ways and for what reasons ('workability').

Morgan (2007), feels that central to a pragmatic approach is not merely an abstract pursuit of gaining knowledge, although this is achieved, but the pursuit of desired ends. The aim of this research, is to find out why a group of local people chooses to engage with the issue of flood management, or not, in their area. In addition it looks to establish in what ways they participate, or why they do not, and to assess their preferred means of participation.

A further reason for considering a pragmatic approach for this research is that it is compatible with a mixed method approach to methodology that can combine qualitative and quantitative research. Table 4.1 is an outline of Morgan's (2007) pragmatic alternative to the key issues in social science research methodology.

Table 4.1 Characteristics of qualitative, quantitative and pragmatic approaches to research (Source: Morgan 2007)

	Qualitative approach	**Quantitative approach**	**Pragmatic approach**
Connection of theory to data	Induction	Deduction	Abduction
Relationship to research process	Subjectivity	Objectivity	Intersubjectivity
Inference from data	Context	Generality	Transferability

A combined approach is considered more realistic and what actually happens in research. Morgan (2007, p.70), explains that "any experienced researcher knows that the actual process of moving between theory and data never operates in only one direction". Movement between induction and deduction means that observations are converted into theories and the theories are then assessed through action. In this way abduction has the ability to predict the workability of future behaviour, or as Johnson and Onwuegbuzie (2004, p.17) state, "abduction is a way of uncovering and relying on the best set of explanations for understanding one's results".

Morgan proposes that there is no such thing as 'complete objectivity' or 'complete subjectivity' and intersubjectivity is a more pragmatic approach, which allows more reflexivity. Analysis can therefore be made of beliefs that may be contentious or widely shared and these can be questioned. In his proposal for a pragmatic approach,

knowledge does not have to be either specifically contextualised as in qualitative methodology or allow generalisations to be made, as in quantitative methodology. A choice does not have to be between the two, but a working back and forth between specific results and more general implications (Morgan 2007). The general characteristics of pragmatism means that there is an opportunity for workable solutions to be found that do not depend on the dualism often associated with either taking a positivist or constructionist approach. Pragmatism can take a common sense approach based more on how well the different approaches can be combined to solve problems (Johnson and Onwuegbuzie 2004).

Pragmatic approaches to research in the past have been criticised for not discussing epistemological and ontological issues (Bryman 2007). Most of the interviewees in Bryman's discussion of barriers to integrating quantitative and qualitative research thought themselves pragmatists, who felt it necessary to put aside issues of ontology for funding and publication reasons. They also thought of their research in terms of outcomes. A considered advantage of bringing quantitative and qualitative findings together is that insights could be made that may not otherwise be achieved. A further criticism of using both quantitative and qualitative methods is the lack of a plan for integration of the two methodologies. However, it is contended that at some stage in a mixed method design that integration will occur (Johnson and Onwuegbuzie 2004).

The problem of integration of quantitative and qualitative methods will be a factor considered in this research design. The purpose of using a mixed method approach is to allow for some triangulation of results and to look for corroboration of phenomena. Complementarily is also sought in that it seeks elaboration, illustration and clarification of results from one method to another. Use of both methodologies allows paradoxes and contradictions to be identified that might lead to reviewing research questions and help expand the breadth and range of the research (Johnson and Onwuegbuzie 2004).

It is the intention in this research to use data that is the result of quantitative techniques. This includes a questionnaire. The results of the questionnaire will inform later qualitative techniques used to plan interviews. Interviews lead to analysis using Q methodology (Q), which is used as both a quantitative technique but

also with qualitative analysis, described in detail in Section 4.6. Q will then be followed by further interviews and a workshop that both produce qualitative data.

The design is therefore iterative, reflective, and generates data that has the potential to inform the planning and results of the previous and following method. The iterative nature of the design is shown in Figure 4.1.

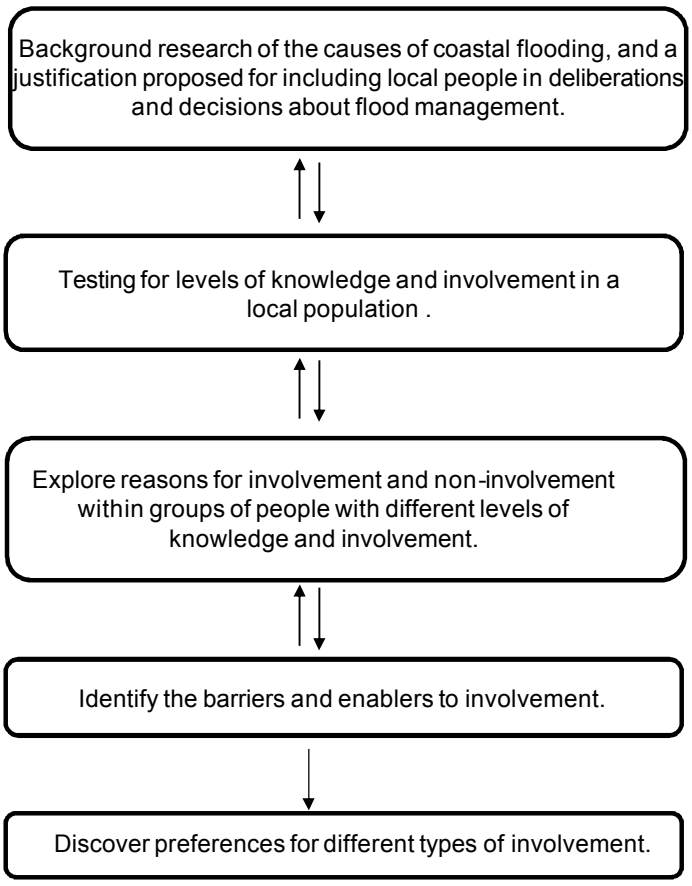


Figure 4.1 Rationale for the formation of the research questions

An initial review of the literature has identified changes local people have to adapt to and is described in Chapter 2. The review also identifies who could be responsible for planning those changes and is discussed in Chapter 3. The background research therefore identified information needed to assess the knowledge a local population has with the causes of coastal flooding, and how much involvement they have had with flood management. Identification of people with different levels of knowledge and involvement will be used to explore reasons for their involvement and barriers they have to involvement. This will help to help to identify opportunities that can be made to include more people in flood management decisions.

4.3. Research plan and design

Table 4.2 Outline of research plan to include research questions, theory, models, method and analysis

Research questions	Theory and Models	Method	Analysis
Research Question 1 **What knowledge does the local population have of the causes, responsibilities and management of coastal flooding?**	Information deficit models	Questionnaire to the whole population of Orford village	Assessing the scale of knowledge from the question answers (high to low) by measuring questionnaire responses. A reflection on questionnaire answers to construct interview questions. An assessment of questionnaire answers
Research Question 2 **What involvement do local people have in coastal flood management?**	Planned behaviour Social capital Social behaviour Action research	Questionnaire, interview	Identify people with different levels of involvement from high to low. Test for a relationship between knowledge and involvement using correlation coefficient.
Research Question 3 **What are the barriers that local people have to participation in coastal flood management?**	Different types of participation Attitudes and values Individual and social barriers Types of governance Information sources and preferences	Interview and Q Methodology (Q)	Identification of barriers to knowledge Preferred information sources identified Motivations to become involved identified Barriers attributed to measured levels of knowledge and involvement Coding analysis using NVivo Factor analysis using PQ method Discourse analysis
Research Question 4 **What ways and methods can be identified to improve participation in coastal flood management?**	Method options and processes Empowerment Responsibility Methods of public engagement and participation	Interview, Q and a Workshop	Method preference analysis

The research design follows the pattern of mixed methods described in section 4.1 that allows investigation of both objective and subjective reasons for knowledge and involvement in coastal flood planning, reflecting back and forth between the two, in other words to seek inter-subjectivity, and a more reflexive, iterative and pragmatic approach. There are four research questions that have been justified in Section 3.6. Background theory and models for the research are found in ideas discussed in Chapter 1. The methods used and how they are to be analysed to answer research questions are explained in this chapter.

4.3.1. Reasons for and critical appraisal of method choices

The reason for using a questionnaire approach is to find degrees of knowledge about flooding and its management on the coast. A questionnaire is considered one of the best ways to test for knowledge in a population (Peterson 2000; May 2001). A whole population is sampled which makes a questionnaire the easiest to administer because it can handle a large number of people. The use of individual interviews at this stage would be difficult to administer to the numbers needed for classification of a local population into degrees of knowledge. Focus groups would not provide the right sort of data to analyse, due to the need for factual answers and the lack of control of the range and type of answers given. This would make it difficult to compare answers and people. The possibility of group effects on answers is also a problem with focus groups, when individuals need to be identified (Bryman 2004). Analysis of the degree of knowledge in the population is sought that will enable a classification of those with high and low levels of knowledge.

Results of questionnaires will inevitably be determined by the questions asked. For this reason an extensive review of background knowledge about the causes of changes along the coast (Chapter 2) and a study of what policies, plans there are and people responsible for the changes (Chapter 3) was undertaken. This provided the information it was felt was needed to ask relevant questions of the local population. The questions were also piloted. The piloting process entailed trialling questions with a cross section of local people (10) and others (supervisors and an English teacher) for clarity of presentation and understanding of meaning. The design of the questionnaire was amended as a result of this process. The front page of the

questionnaire had more information about the survey. Question 1 was not included in the involvement mark scheme, but was used as an introductory question relating to the results of the Parish Plan. Question 1 was also an attempt to assess if there was a concern for more nature reserves and a 'green agenda' suggested as a problem by Barker in 2005 (see Section 3.2.3). The results of this question are analysed in Section 5.2. To ease answering the questionnaire, as many 'tick box' answers were constructed as possible. The wording for the questions had to be carefully considered to ensure each question was answered fully.

A questionnaire has the facility of testing not just for facts, but also individual attitudes and behaviour (De Vaus 2002; Brace 2004). The questionnaire was used to give an indication of the attitudes to involvement by asking people if they would like to become involved in flood planning. Respondents were also asked if they belonged to any groups that may have knowledge of coastal management and attending meetings about flood strategies. An idea to test was that belonging to a group that is involved with the river and coast would mean that they are in some way involved in flood management, which may not be the case, and also that in belonging to many groups they would be a person more likely to want to participate. To explore answers in the questionnaire, an interview was undertaken to test these ideas with the interviewees. For those not interviewed, the number of groups associated with the river that they belonged to, most notably the Alde and Ore Association was used as an indicator of involvement with estuary planning and consequences of flooding. This Association's main focus started with a common concern for the rivers Alde and Ore in 1990 and it has since developed into a forceful pressure group for coastal protection.

Interviews following the questionnaire were designed to be carried out on a sample of people who have answered the questionnaire and demonstrated different levels of knowledge and involvement. This stratified sample was dependent on identifying people selected from different levels of knowledge and involvement from the questionnaire results. It is understood that interviewee selection could bias resultant data because the researcher was familiar with some of the interviewees. This could be a disadvantage, biasing results could occur but every effort was made to ask a cross section of people with different levels of knowledge and involvement, age

group and gender. Knowing some of the people involved also made it easier to get a positive response to interview requests. Eight out of the fourteen interviewed were not known the interviewer previously. Questions asked were the same to everyone for comparative purposes. Interviews are also the most widely employed method of qualitative research because of their flexibility and are favoured for ethnographic information (Bryman 2004).

Post questionnaire interviews generated information to answer Question 3 in the research design. This looks for barriers to participation. This subjective data was then coded, using an Nvivo computer programme that aided analysis of the interview transcripts. Statements identified were then used to construct a concourse for a Q sort (see 4.6.1 for details). It is a characteristic of Q that allows people to express their subjective opinions and identify patterns of preferences for particular features (Webler and Tuler 2006). This makes it a suitable method for this part of the research. The reason for using Q is to find out similar issues that people may have, such as viewpoints about a particular subject (Schlinger 1969), that have emerged from their own experiences (Kitzinger 1999). It also may show differences and similarities with other groups of people, possibly within the various questionnaire categories of levels of knowledge and involvement, or identify other groupings or perspectives.

Q analysis was followed by further interviews that allowed a check to be made on the conclusions of Q and identify significant problems. These were taken to a workshop that would encourage identification of the most significant problems with engagement. From this recommendations for improvements from local people for the inclusion of the public in flood management could be made. The local people that this research is engaging with live in the coastal village of Orford in Suffolk. The justification and plans for using this village follows.

4.3.2. The justification for using the village of Orford as the case study

Orford has similar characteristics to other towns and villages along the coastline of Suffolk. Orford has a total population of 659 people, some of which are second home owners (91 out of the 432 total dwellings), and a local population, which has always

lived in the village and worked in local agriculture, fishing and service jobs. Similarly, Aldeburgh (population 2,690), a neighbouring town on the coast to the north of Orford, has a significant indigenous and second home population. In Aldeburgh the indigenous population have been known as the 'uptowners' (Fletcher 2007), and in Orford many of the original local population live in the upper reaches of the village away from the river frontage (Scarce 2008). This may have an effect on the perceptions of flood risk and involvement in the planning for flood management by different parts of the populations, but it also illustrates similarities between the two settlements. Many of the 'incomers' to many of the East Anglian towns will live on the coast or river frontages and therefore will be more susceptible to floods. In both Aldeburgh, Orford and in the town of Southwold (population 1,380), and village of Walberswick (population 420), (see Figure 4.2), there are increasing numbers of second home owners and those who have retired there. This too can have an influence on the time people have to get involved in local flood management issues.

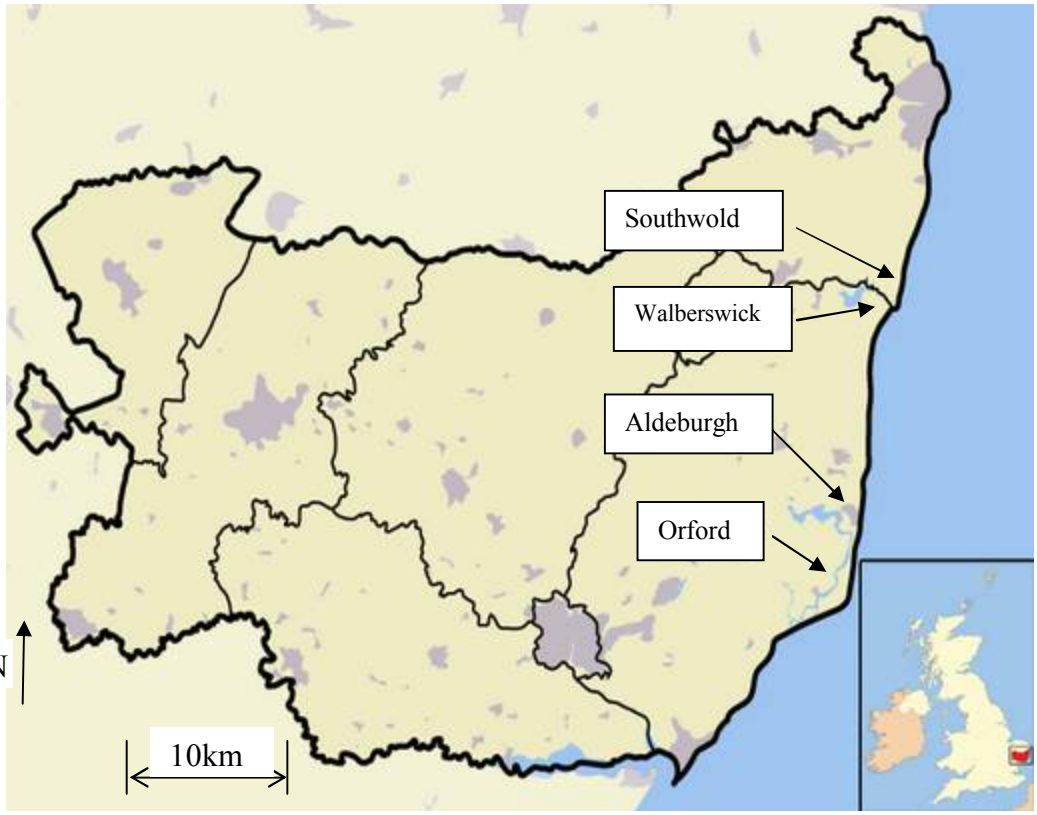
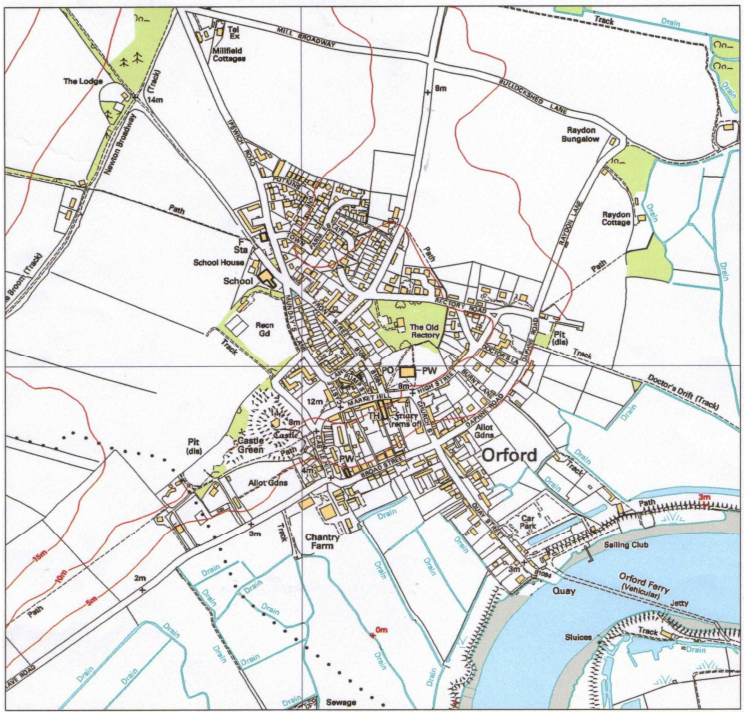


Figure 4.2 Map to show the locations of Orford, Aldeburgh, Walberswick and Southwold on the coast of Suffolk.

The area and population of Orford village is used in the research because it fulfils many of the criteria that make it a suitable and strategically selected case study example. The east coast of England has been identified as one that will be particularly at risk from sea level rise, and if the same set of circumstances arises as the devastating 1953 floods, the current threat of flooding is still significant (See Section 2.2 and Section 3.3.1 for a description of the floods and evidence of the threat of flooding on the east coast of East Anglia). The lowering of the coastline due to isostatic readjustment will also make the east coast of East Anglia more susceptible to flooding than many other parts of the UK coastline.

The population of Orford village from the 2001 census was 659 people. The total population of the whole of Orford Ward from the office of national statistics in 2008 was 1124 in 2001, which includes outlying hamlets and individual houses towards Sudbourne, most of which were not surveyed, except for the Gedgrave area to the south west of Orford along the river Ore and the Ferry Road area north of Orford, where to the north east, the River Ore changes into the River Alde (See Figure 4.3). The more compact area of Orford and Gedgrave with 432 houses was chosen to access more people. Figure 4.3 shows the area surveyed. The box delineates Orford in its surrounding area and the second map Figure 4.4 shows the individual houses that were surveyed.

Figure 4.3 Location of Orford in its surrounding area.
(Source www.maps.google.co.uk)



Figures 4.4 Map of Orford to show the area to which the questionnaire was distributed, (Note: Every household was surveyed). (Source: OS under licence)

Questionnaires were distributed to every household in the month of September in 2008: 400 in the first drop to the majority of the village, 22 in the second to an area and road designated Gedgrave, which is a small parish adjoining Orford on the south west outskirts of the village, and 10 to a newly occupied road of houses in the third drop of questionnaires along the Ipswich Road heading north leaving Orford (See Figure 5.2 for their locations). Returns were collected either a week later from the houses or left in boxes in the garage or newsagent in the Town Hall. Questionnaires were also left in the village post office, shop, public houses, hotel, café and fish restaurant. In addition residents were encouraged to return their questionnaires whenever the recorder met them whilst collecting returns in the village.

One definition of a case study is that it investigates 'a contemporary phenomenon' from real life (Yin 2000 p.13). The threat of flooding of the village and surrounding area is a live issue (see Section 2.2). Strategies for flood management are being devised by the Environment Agency (Estuarine and Coastal Strategies), for the whole of the Suffolk coast, and a local district council led Shoreline Management Plan (SMP2). In the area of Orford these plans overlap which makes the integration of action along the coast and estuary more complicated for local people to comprehend, and will affect understanding of the issues (see Section 3.4.3). Access to information and knowledge acquisition will be a key part of the questionnaire and interview questions in this research.

This single case study could be criticised as not being representative of the situation facing other towns and villages along the east coast, but as described it has many similarities with other settlements along the coast of Suffolk. There are also strong arguments in defence of using a single case study. Flyvbjerg (2006) contends that the case study is central to human learning and quotes Hans Eysenk, who did not initially approve of case study research, but later wrote: *"Sometimes we simply have to keep our eyes open and look carefully at individual cases – not in the hope of proving anything but rather in the hope of learning something"* (Flyvbjerg 2006 p.224). The aim of this work is to provide concrete context dependent knowledge which could be valuable, and is proposed as an advantage of using a case study approach by Flyvberg (2001).

The problem of researcher bias and bringing preconceived notions to investigations are levelled at the use of case studies. The researcher has been involved with observing the process of engagement from work with an estuary planning partnership that involves the village of Orford. However these engagements have been from the top down through meetings organised by the Alde and Ore Planning Partnership (see Section 3.5.1), Environment Agency (see section 3.5.2) and local District Council (see Section 3.5.3). This has aided the research with contact details of some local people who are involved in flood management, but has not helped with identification of those who are not. The questionnaire was village wide and the researcher had no control over who responded. This research is therefore addressing the process of engagement from the bottom up. It asks local people to reflect on the effectiveness of some present engagement practices and how they feel these could be improved.

The researcher attempted to eliminate the possibility of producing biased data from local people by the use of different methods, whose individual results inform the next stage. The questionnaire is asking for factual information and local people are put into categories by their results. These categories are not directly selected by the researcher but by their scores. This is a more positivist method. There is less possibility of preconceived ideas in the outcome of the questionnaire that is, the classification of different people into different high to low categories. The question of bias could be a criticism levelled at question formulation. However ideas from the questions have emerged from an extensive review of the literature, so questions are based on known facts. Facts about scientific uncertainty of the amount of sea level rise due to global warming are acknowledged (Section 2.2), but it is also accepted knowledge by many scientists involved in climate research (IPCC 2007).

Another criticism with single case studies is that it could be difficult to generalise from just one case study. However a comparison between two populations or samples will not always compare like with like or eliminate the problem of bias (Yin 2003). Single case studies have been criticised for not being able to produce generalisations towards theories. However this has also been countered by Flyvbjerg (2001 p.76), who questions the nature of theory, such as that proposed by Eckstein, because theory can be hard to define without taking examples into account. The

value of examples is sometimes underestimated in their ability to test propositions and create hypotheses in scientific development (Flyvbjerg 2001). A stated advantage of using case studies is that there is more room for researchers' subjectivity and arbitrary judgement, than in other methods (Flyvbjerg 2006). This could be considered as a good thing towards discovering new aspects of the involvement phenomena.

Part of Yin's design proposals for using case studies is that there are many variables that will need to be defined by using various ways of finding data. A mixed method approach allows for this. Flyvbjerg (2001) also states that single case studies are multiple because ideas and evidence are linked in different ways. Multiple data sources and methods will help triangulate findings, with the result of making findings more valid (Yin 2003, p.97). Figure 4.5 shows how this research design has interlinking methods and outcomes that can inform the next stage of the research.

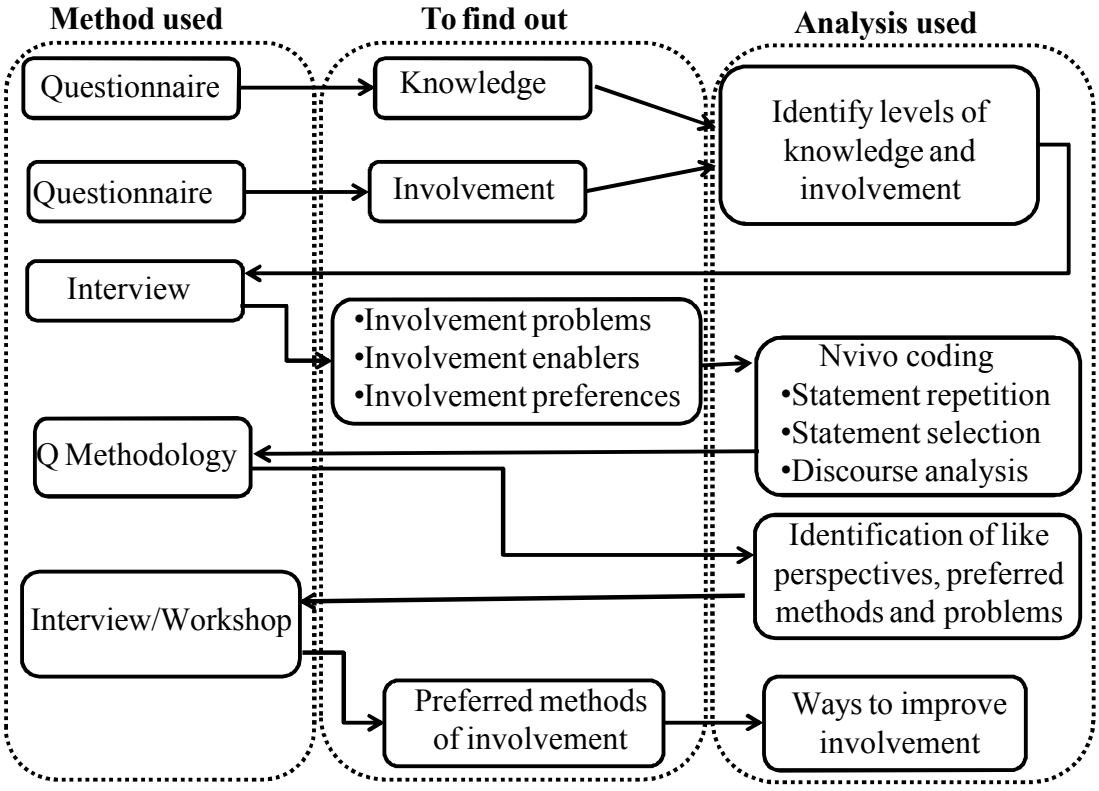


Figure 4.5 Integration of mixed methods

It could be argued that the use of a single case study may not make it as possible to employ the same rigour as for hypothetica-deductive methods. However, it could

also be argued that within case studies rigour is achieved by using the analytical systematic techniques used in this research of: graphing; correlation; a PQ Method computer programme analysis from Q methodology; and NVivo analysis of interviews to identify trends (see Table 4.2). It is also argued that a case study approach has its own rigour, because it is close to real life situations and tests views directly in relation to phenomena. A further advantage of using a case study is that if there are preconceptions that can be proved wrong; these can be revised (Flyvbjerg 2006). Flyvbjerg (2006 p.242), also states that good "social science is problem driven, and more often, a combination of qualitative and quantitative techniques does the task best".

4.4. Questionnaire rationale and design

To answer the research question 'What knowledge does the local population have of the causes, responsibilities and management of coastal flooding?' A questionnaire was devised with the aims of being as inclusive as possible. It was delivered to every household (432 in 2007) in Orford. Efforts were also made to reach groups of people who are not householders and therefore may not readily complete the questionnaire distributed in this way. The whole village distribution was planned to maximise engagement. This was also with the knowledge that a significant number of householders will be in the older age groups. Based on the population distribution of Orford village from the 2001 census:

5%	16-24 year olds	Total 31
21%	25-44 year olds	Total 138
31%	45-64 year olds	Total 203
31%	65+	Total 204

83 children were aged below 16 years, and made up the other 12% of the population. This age group were felt to be too young to have participated directly in flood management for the purposes of this survey. The total population of Orford was approximately 659 in 2008 when the survey was carried out. (Note: The census figures are used to illustrate the proportion of people in Orford in higher age groups. It was not felt necessary to use census age group divisions to structure questionnaire

returns because the outcome of the questionnaire was to assess different groupings of knowledge and involvement that did not necessarily relate to age group. Age was considered when analysing individual responses).There was a lack of survey returns from the younger age groups ≤20 and 21-40. This was addressed by targeting the youth drama group for the ≤20, school mums waiting for their children outside school on three occasions, a playgroup leader who had access to younger mums, a leader of a recreation club in the Community Hall. In addition a road of 10 new affordable houses in the village, were approached, that had just recently been occupied mostly by young families, including more of the 21-40 age group. Personal contact was made in some cases by calling back for returns. However, if the questionnaire was not returned within a week, it was not usually forthcoming. The lack of returns in the 21-40 age group was further pursued by contacting two village residents of that age who were given questionnaires to distribute to friends and relatives in the village of the same age.

The starting point for the research is to establish the levels of knowledge and involvement that local people have regarding the causes of flooding. Specifically who they think is responsible for flood management and the significance of physical changes along the coast and river. Also to find what participation respondents currently have with flood issues. Where possible, the household members were engaged in discussion when the questionnaire was distributed to obtain a spread of respondents through the age groups, also to ask people if they were willing to be interviewed for the next stage of the research.

It has been stated that a questionnaire is one of the best ways to test for factual knowledge in a population (Peterson 2000; May 2001). Questions 3, 4, 5, 6, 7, 8, 9 and 13 of the questionnaire measure collectively, the level of knowledge about flooding and its management, of the local people answering the questionnaire (See Appendix 1 for a copy of the questionnaire and mark allocation to questions). The questions for knowledge are:

Q 3 asks: Do you think your group could be affected by flooding in Orford or surrounding area, and in what way?

Q4 asks: Do you think the Suffolk coast is going to have less, the same or more floods from the sea in future?

Q5 asks: What do you think causes flooding along the Suffolk coast?

Q6 asks: Is there anything else that you think might cause flooding along the Suffolk coast?

Q7 asks: If sea level rise causes more flooding, which of these local land uses do you think would increase, decrease or remain the same?

Q8 asks: Who do you think is responsible for managing flood defences around Orford?

Q9 asks: Who do you think is most responsible?

Q13 asks: Which of the above options would you prefer to see along the coast of Orford? and What are the reason(s) for your choice?

Table 4.3 shows the marking scheme and what they were awarded for. The description that follows describes why the questions were asked.

Table 4.3 Explanation of marking scheme for knowledge

Question Number	Mark allocated	Marks awarded for
3	1	A comment about how any group that the respondent belonged to could be affected by flooding shows that they have thought about the consequences of flooding.
4	1	The answer for the mark is taken to be there will be more flooding.
5	8	Up to eight acceptable answers of: sea level rise; melting ice and glaciers; increasing storms; tidal surges; onshore winds; subsidence; decreasing sand and shingle on beaches; loss of sea defences. Stating offshore winds; increasing sand and shingle on beaches; and in this case increasing rainfall, was incorrect.
6	1	An extra mark is allowed for any other reasonable comment about what might increase coastal flooding. Dredging would be allowed, because this is a local, although unproven concern.
7	9	Identifying that salt marsh, mud flat and salty lagoons would increase, whereas beach, crop and grazing land, sand dunes, housing and footpaths could decrease were answers allocated up to nine marks.
8	7	Correctly identified responsible groups for managing flood defences were SCDC, the Environment Agency, Defra, RFDC, Farmers and Landowners, and RSPB and The National Trust, where they own the land. Other responses were incorrect because these groups are not directly responsible for managing flood defences.
9	1	The response looked for was the Environment Agency or Local District Council. However responses about Defra or the Treasury who fund flood defences were also counted.
13	2	The mark given for choosing one of the management options, either, hold the line, managed realignment or no active intervention. This will show an engagement of the respondent with flood management decisions. It will only be allocated if there is a reason given for the choice, then two marks will be allocated.
Total	30	

Questions 3 asks if the respondents have any knowledge of ways any group(s) they belong to, may be affected by flooding in the village. The question seeks to determine whether the respondent has any personal reflection and knowledge of the effects of flooding. It may be possible that they have knowledge due to the personal interests and local knowledge (Murdock and Clark 1994, Buckeley 2000, Miller 2001, Sturgis and Allum 2004). These determinants of knowledge will be further explored in the following stages of the research.

Question 4 assesses the respondents' perceptions of the threat from flooding, and asks for identification of the degree of risk that the Suffolk coast has from flooding? It is generally accepted in scientific communities that there will be more flooding along the east coast due to sea level rise and isostatic readjustment. Discussion of flood causes and problems are found in Section 2.2 of the literature review. It is interesting to see if local people reflect this view and are in agreement with scientists who are predicting sea level rise.

Question 5 asks what respondents think causes flooding along the Suffolk coast. There are eleven options, eight of which could be selected as causes. Three are not considered as a cause of coastal flooding in this area. A mark of up to eight reflects their depth of knowledge of the causes. Respondents were asked to select as many options as they think applies. An extra mark was awarded for knowledge of any other causes in answer to Question 6. As suggested in Table 4.3 above, offshore dredging is a contentious reason, and has been observed as such in local SMP consultation meetings (Henderson 2009). The contention arises between Government organisations, such as the Marine Management Organisation (MMO) (Mayer 2011) and Natural England (Drake 2011), and local people who perceive that offshore dredging is exacerbating coastal erosion with the possible consequence of flooding. Research has often refuted the adverse effects of dredging, but this has still not stopped local people questioning their findings (Drake 2011).

The effects of increased flooding are assessed in Question 7. The answers to Question 7 will reflect what land-uses respondents think will increase, stay the same, decrease or they are unsure about. Marks of up to nine are allocated for identifying

the three that are most likely to increase and the six that are most likely to decrease. Choosing causes in the 'same' or 'unsure' columns gain no marks.

Question 8 assesses respondent's understanding of the complex issue of responsibility for flood management, as discussed in Section 2.3.3, and who they think is most responsible. Seven of the options given are acceptable answers.
Question 9 asks who they think is most responsible. The more correct answer is the Environment Agency, which is the Government Agency responsible, but Defra or Suffolk Coastal District Council, who are often the lead on the creation of Shoreline Management Plans, was also accepted. It would take a knowledgeable respondent to know this.

Question 13 asks for preferences and understanding of the main flood management options of holding the line, managed realignment, and no active intervention, currently proposed in the Environment Agency Strategies, defined in Section 2.4. Reasons given for their choice will reflect that respondents have some knowledge of the choices and the consequences if their choice of management option was accepted.

The weighting given to different areas of knowledge were balanced between: knowledge of the causes of coastal flooding shown in Question 5 and 6 were awarded nine marks; knowledge of the effects of coastal flooding, Question 7 was also awarded nine marks; knowledge of who is responsible for coastal flood management, Question 8 and 9, were awarded eight marks. The three other knowledge questions for four marks were specific to personal and other knowledge

The total score for the knowledge section of the questionnaire is 30. The scores of each respondent will be counted to assess the most and least knowledgeable people. From this, people to be interviewed will be determined. To make sure that people belong to either the High Knowledge or Low Knowledge category, one standard deviation each side of the mean determined whether knowledge is high or low.

Together with the High and Low Knowledge category, respondents were linked with their responses to questions that sought their degree of present involvement in flood

management issues. Questions were asked about the organisations they belong to and what meetings they have attended or would attend about flood management.

Question 1 was used as a question to introduce respondents to the idea of changes in the landscape that may or may not be the result of flooding. Questions to assess the amount of involvement in coastal flood management are:
Question 2 asks: Do you belong to any groups in Orford or surrounding area? (Not just to do with flooding or the environment, but please include these).
Question 10 asks: Have you heard of any of these plans or been to a meeting about them?
Question 11 asks: Have you attended any local meeting about flood management? What type of meeting would you consider attending?
Question 12 asks: Is there any way in which you would like to become involved in flood planning?

Table 4.4 outlines the marks allocated for answers to involvement questions

Table 4.4 Explanation of marking scheme for involvement

Question Number	Mark Allocated	Marks awarded for
2	3	Up to three marks were given to belonging to organisations that had some connection with the river or sea that could plan for, or have consequences from flooding.
10	3	Up to three marks were given to attendance at any strategy consultation meetings for: SMPs; Land Use Plans; EA strategies; RBMPs or CHaMPs.
11	3	Three marks were given to any type of meeting about flood management that included PC Meetings surgeries, workshops, public meetings, stakeholder interest groups
12	1	One mark was allocated that showed any future commitment to becoming involved.
Total	10	

Question 2 determines how many groups in Orford or the surrounding area, respondents belong to. This question is asked to assess overall involvement in any group for analysis, but also those groups concerned with flood management issues, for example membership of the Alde and Ore Association, but not membership of the Women's Institute or Drama Group.

Questions 10 and 11 will be scored for the number and type of meetings attended. Question 12 was an open question that asked for any future preference to become involved. The answer to this question can be followed up in interviews to assess the ways in which people would like to be engaged. The question is also assessed for the response of people with different levels of knowledge and involvement (see Table 5.14 and analysis).

The weightings for the three different means of involvement from belonging to organisations (Question 2), awareness of plans (Question 10), and attendance at meetings (Question 11), were equal in the marking scheme.

As stated, the knowledge answers to the questionnaire will have a score of 30. The involvement score is out of a maximum of 10. The boundary between high and low levels of involvement will be defined using one standard deviation either side of the mean for each score to make sure respondents fit into the following categories:

High levels of knowledge and involvement	(HH)
Low levels of knowledge and involvement	(LL)
Low levels of knowledge and high involvement	(LH)
High levels of knowledge and low involvement	(HL)

When the questionnaires were analysed, a further category was introduced of 'No Category' (NC) for the scores where respondents fell within one standard deviation of the mean for knowledge and involvement. The initial interviewees were selected in the first four categories of HH, LL, LH and HL.

It was planned to calculate a Spearman's correlation coefficient, to see if there is any statistical relationship between knowledge and involvement from the results of the questionnaire (see the analysis of the questionnaire results in Chapter 5 Section 5.2.3). For further stages in the research the idea that people of different levels of knowledge and involvement may have different preferences to participation will be pursued with the use of Q methodology This allows for analysis of the characteristics of individuals that may have similar perspectives in identifiable groups. It may be

that the levels of knowledge and involvement will provide an understanding of these groupings. Subsequent to the questionnaire survey, individual people who have been defined in different categories of knowledge and involvement were sampled in interviews for their attitudes to and preferences for participation and their responses analysed for use in the Q methodology.

4.5. Questionnaire follow-up interviews

The next stage of the research is to prepare for the Q analysis and reflect on the questionnaire answers which will help answer the research question of: **What are the barriers that local people have to participation in coastal flooding management?**

In preparation for applying Q Methodology a sample of people were interviewed who had answered the questionnaire and demonstrated different levels of knowledge and involvement. The sample was a stratified sample, which was dependent on a selection of people with significantly different scores from one standard deviation from the mean. How this calculation was carried out and the resultant distribution is found in Section 5.2.3. People in the four, High Knowledge, High Involvement (HH), High Knowledge Low Involvement (HL), Low Knowledge High Involvement (LH), and Low Knowledge Low Involvement (LL) categories, were used to define the sample. It was thought important to use stratified sampling because there may be differences in the reasons why people with high knowledge would be motivated to become involved, as opposed to those with low knowledge. Reasons for motivation are discussed in the work of Habermas (1987); Blake (1999); Blake (2001); Sturgis and Allum (2004); Dickson (2005) in Chapter 1. It will also be important to investigate why people with high knowledge are not so involved and people with low knowledge are more involved. Table 4.5 describes the interviewees whose responses were the source of the Q Sort Statements.

Table 4.5 Interviewees for pre-Q sort.

Category	Coded Name	Characteristics of Interviewee	Comments
HH	25	Male, 41-60, Environment Agency Flood Management Officer	This interviewee has responsibility for flood management engagement in the local area
HH	04	Female, ≥61,Teacher	An incomer to the village. Member of the Alde and Ore Association and sailing club
HH	36	Female, ≥61, Book Keeper	Has lived in various locations on the floodplain of the river. Lived in the area all her life. Alde and Ore Association and sailing club member
HH	03	Female, ≥ 61, Retired Deputy Head Teacher	A newcomer, retired to the area. Vice-Chair of EPP, and on many local committees
HL	22	Female, ≥ 61, Lab. Technician retired	Member of the WI
HL	00 - not further involved to get a code	Male, 41-60, Environmental Consultant for London Company	Second Home Owner
HL	11	Male, 41-60, Local Rector	Recently moved to the village. Communicates with a lot of villagers
LH	05	Male, ≥61, Ex Diplomat	Recommended the NT bought Orfordness. Involved in politics
LH	13	Female, ≥61, Retired Physiotherapist	Involved in voluntary flood response
LH	00 - not further involved to get a code	Male, 41-60, Management Consultant	Lives on the floodplain. Is part of the river warden scheme of the Alde and Ore Association
LL	24	Female, 21-40, Photographer	Orford Sailing Club Instructor
LL	12	Female, ≥61	Lived in the village all her life
LL	02	Male, <20, Student	Family have moved to the village in the last few years
LL	01	Male 41-60, Ex publican	Responsible for emergency flood planning for the village

An attempt was made to interview as wide a cross section of villagers as possible. There are always going to be other people who have different viewpoints, for

knowledge, experience and preferences, are going to be multivariate. The criteria for these interviews were levels of knowledge and involvement but also selection across age ranges. From questionnaire returns seven interviewees were identified as age ≥ 61; five in the 41-60; one in the 21-40 and one in the <20. It was difficult to persuade some of the younger age groups to be interviewed. Some had completed questionnaires, especially the drama group, who were the main access for the under 20s, but they did not want to be interviewed. Several came from two known contacts in the 21-40 age grouping who were asked to contact others the same age as themselves, but the returned questionnaires had no named contact.

The interviewees were chosen because they represented examples of people with different levels of knowledge and involvement in flood management. As described an attempt is made to select across different age groups. Statements from these interviews could provide the 'concourse' for Q analysis. A concourse is the identification of key issues that are translated into statements for participants in the Q sort to prioritise. Q will not elicit all the reasons people do or do not engage with flood management decisions, but it makes practical research into subjectivity possible (Robbins and Krueger 2000). Interviewing was finished when the pool of interviews was exhausted, and when the reasons given were beginning to be repeated several times and a 'saturation point' reached (Eden et al. 2005).

A semi-structured interview was selected. Structured, focused or unstructured interviews were considered, but for the following reasons the semi-structured interview was preferred. The semi-structured interview has an advantage over the structured interview because questions can be specified like a structured interview but used as more of a guide (Silverman, 2001). This allows more freedom for the interviewer to probe answers and ask for clarification and elaboration (May 2001). The need to focus people's responses on flood management issues makes unstructured interviewing not as useful as semi-structured interviewing because it could be too open-ended. Although subjectivity in responses is sought, the aim is also to compare answers and find similarities in concerns, which will need more structure than an open-ended discussion. The aim in the interviews is to find as many perspectives as possible and identify problems people have with involvement in

flood management and ways to improve their participation. A semi-structured interview allows these ideas to be probed.

Box 4.1 shows the eight outline areas of questioning in the interviews. Question 1 asks where respondents get their information about flood management from. This was thought to be a good starting point because it focused the respondent's responses to flood management and required an easier and more factual answer. Answers were also checked for groups that they belonged to for flood management involvement and other information given in the questionnaire. The second and third questions also probe information issues of what information to trust, and who to trust to give it. The issue of trust is a recognised barrier to involvement (Petts 1999; Hailey 2001; Dalton 2006; Lorenzoni et al. 2007), and can be investigated in a local context in this research. Various trust issues could be an important reason for lack of involvement as cited by Blake (1999), Johnston and Soulsby (2006) and Harries (2007).

Box 4.1 Questions for semi-structured interviews

1. Where do you get your information from about flood management?
2. What information do you trust about flood management?
3. What people do you trust to have the right information about flood management?
4. What uncertainties do you have about flood management?
5. Why do you want/not want to be involved in flood management?
6. What stops you becoming involved in flood management?
7. In what ways might you be willing to become involved in flood management?
8. Would you be willing to be involved in further research?

Question 4 sought to probe the uncertainties that people have about the science presented about flooding. Is climate change real, will it affect them, how would they like to be protected, who is responsible for that protection and what changes are acceptable? Uncertainty about the science (Johnston and Soulsby 2006), and reducing the amount of uncertainty people have so that they can trust those

responsible (Harries 2007), are important prerequisites to increased involvement and possibly action. (See the discussion of uncertainty about climate change in Chapter 2 Section 2.2). Questions 5, 6 and 7 probed the ideas of: why people want to be involved (Question 5); what stops them from becoming involved (Question 6); and in what ways might they be willing to become involved (Question7). The last question asked if the respondent would be willing to take part in further research, specifically in a Q sort. How the interviews were used is described as part of the explanation for administering Q methodology in Section 4.6.1.

4.6. Justification for using Q

Q methodology was invented by William Stevenson (1902-1989) in the 1930s, and first published in a letter in 'Nature' in 1935 (Brown 2008). Stevenson was a physicist and psychologist and the last assistant of Charles Spearman the statistician, working with him on factor analysis. Stevenson's 'Q' methodology emerged from working with Spearman's 'R' (Kitzinger 1999). Spearman's R selects a population n that are each measured in m tests (such as in the questionnaire method). In objective mode the participant is asked a predetermined question in the questionnaire and their responses are analysed in relation to each other. Whereas Q has a population engaging with n different tests (statements), each of which is measured or scaled by m individuals. The person therefore does something, and sorts subjectively (McKeown and Brown 1988; Brown 2008).

The use of Q follows on from a questionnaire that assessed the amount of knowledge and involvement in members of the local population. As such it is part of an iterative approach that develops knowledge of and from participants and builds up a picture of the local populations' issues with involvement. An advantage of using Q is that it can develop reflexivity (that could become apparent in discussion while carrying out the Q sort and/or in post Q sort interviews). It can raise consciousness and local understanding about the issue of flood management, and increase awareness of empowerment issues (Previte et al 2007). It is a feature of Q, that people can be grouped together in the analysis and pre analysis, because they show similar or different attitudes or motives. It is a qualitative technique that looks at people's individual responses, but also has the advantage of the application of statistics that

allows for respondents to be objectively and mathematically defined (Schlinger 1969).

Statistical analysis in Q tries to overcome what could be considered as 'arbitrary subjective personal experiences', in that it measures the number of times the experiences are cited (McKeown and Brown 1988). The identification of different feelings about flood management are reviewed and considered as 'operant subjectivity' that can highlight important ideas. These ideas or feelings about coastal flood management processes will be arrived at differently by different people (McKeown and Brown 1988). However, the statements derived from Q analysis contextually construct a subjective 'impression' of people's views which makes Q a suitable method for this research.

Feelings that respondents had about flood management, have been translated into statements using the interviewees' own words, apart from some minor changes for grammar and readability. The Q design has 'face validity' due to limited changes by the researcher. Each statement will have 'item validity' because each statement is interpreted by an individual participant who rank orders the statement. General validity of the statements can be sought in either the tape recordings of reasons at the Q sort, or in follow up Q interviews. General validity may not be able to be externalised because it is subjective, but each individual rank order of statements can be considered as a valid expression of their opinions (Valenta and Wigger 1997). Participants with similar rank orders in their Q sorts could have similar motivations and barriers of responses. In terms of generalising from this study, it is accepted that the results are for the immediate set of participants. However, the results can also identify 'valid and authentic opinion clusters' that can help explain reasons for involvement in flood management decisions by identifying people with different perspectives (Valenta and Wigger 1997).

By using Q, it is expected that analysis of the results will help to explain what it is that stops some people becoming involved in flood management in the Orford area, and what might enable them to become more involved. This seeks to help answer the research questions of: What are the barriers that local people have to participation in

the management of coastal flooding? And What ways and methods can be identified to improve participation in coastal flood management?

The process for Q carried out in this research follows a pattern of stages that begins with defining the concourse or statements that represent views derived from using an Nvivo computer programme that aids the coding of interview transcripts (see Appendix 2) and ideas from the literature on participation. Details of the stages will be described and explained in the following Sections: **Section 4.6.1, Stage 1 - The concourse or definition of statements** explains how the statements were devised; Coded statements are selected to form a Q concourse (40 statements in this research, See Table 4.10), described in **Section 4.6.2 Stage 2 - The Q set selection;** The participants selected for the Q selection are described in **Section - 4.6.3 Stage 3 - The P sample selection;** Q sorting was then carried out by participants on a scoring and ranking scale from 'most like my view' to 'least like my view 'described in **Section - 4.6.4 Stage 4 - Q sorting;** How statistical factor analysis by a PQ computer programme was then performed on the sorts is found in **Section 4.6.5 Stage 5 - Statistical factor analysis,** factor analysis allows for interpretation of the results (see Chapter 5, Section 5.4); and **Section 4.6.6 Stage 6 - Interpretation of Q results,** outlines the approach to analysing the Q results.

4.6.1. Stage 1 - The concourse or definition of statements

As described in Table 4.5 fourteen people across the LL, LH, HL, HH categories were selected for pre-Q interview. Interviewees were asked questions outlined in Section 4.5 Box 4.1, to gain a greater understanding of where knowledge sources had been used, and where they were to be found, who is responsible and could be trusted to make decisions, what were interviewees' uncertainties about flood management and what motivations and barriers existed that they thought inhibited or improved involvement in flood management. As described in Section 4.5, respondents with more than one standard deviation from the mean scores of knowledge and involvement were interviewed to gain what could be more diverse reasons for involvement. The results of the interview questioning were transcribed verbatim into an NVivo computer programme. The interview transcripts were then reviewed for comments about different aspects of involvement. The strategy for the analysis of the questionnaire follow up interviews is outlined in Figure 4.6

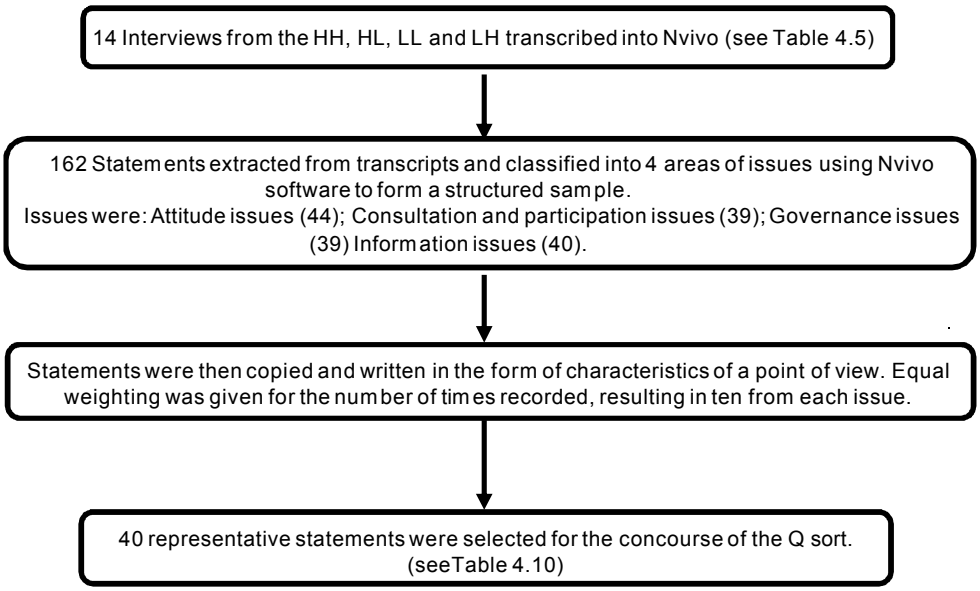


Figure 4.6 Explanation of how Q statements were selected

Figure 4.6 explains that the main use of the follow up interviews from the questionnaire were to arrive at the statements that were to be taken forward for Q sorting and analysis. During interviews it was not just problems with involvement that were discussed but suggestions for improvements also emerged. When dialogue was extracted from the transcripts they were roughly equal in number. 44 references were made about individual attitudes, 40 referred to governance, 39 referred to consultation and participation issues and there were 38 pieces of dialogue about information issues. It was therefore decided that these issues should be given equal importance. However not all references or pieces of dialogue were easily transcribed into statements but because of the initial equal distribution the four categories were given equal weighting of statement allocation. That is 10 statements for each issue. 40 statements were considered the optimum number (see Section 4.6.2 for an explanation of this number of statements and Appendix 2 for an example of NVivo analysis of coding for the concourse of statements). The concourse of statements drawn from interviews needs to define what the key issues are in the study and get an understanding of the variety of perspectives (Robbins and Krueger 2000).

With the aid of ideas and theories of participation from the literature review in Chapter 1, the statements were divided into four categories:

1. Individual Attitude Issues
2. Consultation and Participation Issues
3. Governance Issues
4. Information Issues

Different 'Individual Attitudes' that meant local people identified barriers to becoming involved in flood management or produced statements about enabling them to become more involved, were extracted from the transcripts. Ideas from Azjen (1991), Renn, (1995), Petts (1999), Hailey (2001) and Johnston and Soulsby (2006) provided the idea for this category. Who respondents engaged with or recognised as being responsible for flood management decisions were identified as 'Governance Issues'; these emerged from ideas about how individuals can participate from Arnstein (1969), Rhodes (1997), and Renn (1995). The experiences of local people with past or current 'Consultation or Participation' processes were sought in transcripts with references to ideas from Keen (2005), Dalton (2006) and Webler and Tuler (2006). A final category of statements identified barriers they experienced in obtaining 'Information' and possibly knowledge about flood management. Background ideas for this category came from Habermas (1987), Blake (1999), Buckeley (2000), Blake (2001), and Lorenzoni et al. (2007).

The first statements selected were in the classification of 'Individual Attitude Issues'. Statements were selected in a way that was representative of different sub-issues in proportion to how many times they were cited, as shown in Table 4.6. The sub categories, for example 'busy' and 'disillusioned' emerged from coding statements about attitudes to flood management. Because equal weighting was given to the four sets of issues, ten statements were selected for each of the four categories of issues. The total number of statements in each sub category in the issue 'Individual Attitudes' were given a proportion of selected statements dependent on the number of times they were cited in transcripts (Column 2 Table 4.7). For example 'Disillusioned' had eleven statements and as a proportion in weighting the number, had three selected, whereas 'Lack of Knowledge had six statements and one representative statement was selected.

Table 4.6 Individual attitude issues

Individual Attitude Issues	**Number of times issue was cited in transcripts**	
Sub category	**Total number of statements**	**No of statements selected**
Busy (B)	6	1
Individual involvement (IV)	8	2
Disillusioned (D)	11	3
Lack of knowledge (LK)	6	1
Personal interest (PI)	7	2
Lack of confidence (LC)	5	1
Total	43	10

The sub-category that people are busy emerged from six comments about not having enough time to think about or do anything about flood management. Several interviewees commented that they were in *"their own little bubble", "people are caught up in the business of earning a living, caring for families"*. The statement that *"I am busy doing other things"* related to 'practicality barriers' identified by Blake (1999) and seemed to sum up these responses so was selected as Statement 1.

Individual involvement was identified as a group of comments that related to what people said they were prepared to do or not do. The category was identified with ideas from action research (Ajzen 1991; Blake 1999; Blake 2001) and Putnam's thoughts of 'bowling alone'. His theory was that when people are only prepared to do something and get involved if they are personally affected. This differs from the Personal Interest sub category in that belonging or expressing an interest does not mean the person is prepared to do something about it. The statements *"I do not like speaking in public",* and *"If it was a practical situation and flooding was actually happening, then yes I would get involved"* (Statement 3), or the more positive *"I would join an organisation like the Alde and Ore Association to get involved"* (Statement 2) are typical of the statements where people expressed an interest to want to do something to become involved.

The group of statements under the heading of disillusionment came from the local experience of flood management which has been on-going since the first Environment Agency Strategy Plan draft in 2004 (see Section 3.5.2). Interviewees made comments about people losing faith in the consultation processes that have been carried out, especially when *"millions of pounds have been spent on consultants, at the expense of the river walls".* Personal disillusionment was summed up in the statement *"I think my opinion will not make a difference"* (Statement 4), and frustration and disillusionment with the process in the statements *"There are many surveys and suggestions but nothing actually happens*" (Statement 5) and *"Meetings are boring"*(Statement 6), which was a comment from the younger age group interviewed.

Lack of knowledge was thought to be an important reason for people not getting involved and has been discussed as an issue as the problem of information deficit in Section 1.2 and 3.6. (Buckeley 2000; Sturgis and Allum 2004). This was further explored by asking in the interviews where people get their information from. However the significance of knowledge about flood management will also be analysed because the interviewees and participants in Q have been classified as having variable amounts of knowledge. One outcome of the analysis may therefore reflect clusters of statements around degrees of knowledge of individuals or the importance of the lack of the knowledge statement reflected in the Q selection. The statement *"I would rather leave it to other people who know more about it and are more aware of the river"* (Statement 7) reflects a lack of knowledge and reliance on other people found in five out of the six statements on knowledge and was therefore used as a representative statement.

Personal interest statements reflected how individuals could be affected by or deny any effect of flooding. The idea of personal interest were also seen in Blake's (1999) 'Responsibility Barriers' (see section 1.3.2), which concluded that people saw no need to get involved because of laziness or a lack of interest. This idea of personal interest was reflected in several comments denying any risk of future flooding, for example *"Some people cannot look to the future, they live for the day"* and *"there is a lot of apathy about".* The statement selected that encompassed these feelings was *"I don't think flooding will happen in my lifetime"* (Statement 8).

The positive reason for individuals getting involved was *"I get involved because I have an interest, in farming, sailing or protecting wildlife"* (Statement 9). This statement emerged from a comment from an Environment Agency expert in consultation who was interviewed and whose actual words were *"People get involved because it is their own farm at risk or interests like the birds, bushes or sailing, in other words their own interest"*. It was felt this was not suitable to use verbatim because it is too cynical, and may be difficult for people to respond to.

The last statement in this category reflects the lack of trust people have in decision makers, specifically stated as the 'government', in the statement, *"People are cynical of politicians. I think they have a hidden agenda"* (Statement 10). This issue differs from specific trust issues referred to in Consultation and Participation Issues in Table 4.7 and discussed next, because it does not refer to a process.

Table 4.7 Consultation and participation issues

Consultation/ Participation Methods		
Sub category	**Total number of statements**	**No of statements selected**
Local people (LP)	3	1
Active participation (AP)	5	1
Trust issues (TI)	11	4
Type of consultation (TC)	11	4
Total	30	10

There have been consultation processes ongoing, on and off, in the Orford area since 1999 when the first Shoreline Management Plan changes were proposed by the consultants at that time, Posford Duvivier. A cause for local concern was prompted by a change in policy from 'hold the line' to 'realignment of defences' along the coast of Orfordness, especially at Slaughden, where a breach in the sea wall could allow increased flooding in the estuary (a detailed discussion of the policies and proposals are found in Section 3.4.4 Shoreline Management Plans and Section 3.5.2 Environment Agency Strategy Plans). Since that time local people have had the opportunity to attend meetings and exhibitions about Environment Agency 2004

strategy proposals, now superseded by 2011/2013 plans and the current SMP2. This is all consultation and little participation has been developed. The statements therefore reflect some people's experiences with consultation processes and options as to what they would or would not prefer.

How some local people would like to find out about flood management is represented by the statement: *"Finding out by word of mouth, like the village shop, is terribly important to us"* (Statement 11). How local people could actively participate is represented by the statement *"The way local people in Orford should get involved is to phone up or write to our District Councillor"* (Statement 12).

Who they should trust in the consultation process, is represented, in the case of the Environment Agency by the statement *"The Environment Agency think that consulting people is important, they now do things differently and consultation is better"* (Statement 13). Local people are represented by the statement: *"I would listen to someone normal, someone who uses the river the same as I do"* (Statement 14).

The statements that represent what local people think of consultation processes are:*"I think consultation works and decisions are accepted if there is real honesty, and they tell you how it is"* (Statement 15), and *"If they have made up their mind before consultation, there is no real choice and it is a waste of time*" (Statement 16). The last statements in the Consultation and Participation issues refer to options for consultation methods. One is the possibility of knocking on doors to inform people and is represented by the statement, *"People do not want the Environment Agency knocking on doors to tell them about flood management"* (Statement 17). Some interviewees wanted an organisation to represent them stating *"What we need is an organisation that will represent us when we don't agree with what is going on"* (Statement 18). Alternative methods like *'Drop ins' in the village hall to ask questions individually are better than meetings"* may be a preference (Statement 19), and the importance of debriefing after meetings *"Local people involved in flood management should be invited to de-briefin*gs" (Statement 20).

There was little evidence from the interviews that many people had or would want to directly participate in decision making but most people had views about who should

represent them, how they should be represented and who they trusted to represent them. Some interviewees thought that finding out about flood management as individuals from local people was preferable (IG in Table 4.8) others had views about the Environment Agency, National and Local Government (EA, LG and NG in Table 4.8) and representation of their views through the Alde and Ore Association (AOA in Table 4.8).

Table 4.8 Governance issues

Governance Issues		
Sub category	**Total number of statements**	**No. of statements selected**
Individual (IG)	6	3
Environment Agency (EA)	5	3
Alde and Ore Association (AOA)	3	1
Local Government (LG)	4	2
National Government (NG)	2	1
Total	20	10

Governance is complicated for the coastline. A history of this complexity is found in Section 3.3 that describes aspects of national policy for flood defence and coastal erosion from 1953 to the present day. There are problems of overlapping and conflicting demands and a recognised need for integration of policies (Turner 2000). The aim of Integrated Coastal Zone Management (ICZM) discussed in Section 3.2.2 is one way to help organisations and agencies co-operate. Local people often see that something needs to done and someone needs to be responsible for it. At present local authorities often oversee SMP plans, the Environment Agency has responsibility for Coastal and Estuarine Strategies, often overlapping in the same areas, and they both have to take heed of Habitat and Land Use legislation overseen by Natural England.

Local people will want to be involved because potential flooding of the village is an issue that affects them, and they are more likely to engage with the issue because of this (Dalton 2006). So the statement that *"People are keen to get involved at the beginning but there is a lot of cynicism now because nothing has happened"* (Statement 21) is a potential source of frustration in the process of involvement.

Other individual reasons as defined in the sub category are the individual political stance of *"People ought to write and protest more"* (Statement 22). Healy (1992), and Renn (1995), both identified that objective decision making by organisations and government are not always seen to be in the interests of those affected. The final individual comments, *"When it comes to community things people always helped each other, and we don't need to have it written down"* (Statement 23) reflects the possible informal power of the local community, the Q sort will show whether this is an important criterion for local people.

The other seven statements in Governance sub categories are to find out views about the organisations that are perceived as responsible for flood management by local people. Three statements: Statement 24*"The Environment Agency has not got the expertise of putting the message across to ordinary people"*; Statement 25 *"I'm told there are many good people in the Environment Agency. They are well trained, and want to do a good job"*; and Statement 26 *"The Environment Agency doesn't feel that the small number of people involved, are worth the billions that it is going to cost to save the coastline",* refer to the Environment Agency and whether they are carrying out their responsibilities to engage with the local population satisfactorily.

How local people feel they ought to be represented by local government is shown in Statement 27 *"Local councils should be the main agent for sea defences*", and Statement 28 *"We need to talk to the local councillors more"*. One of the ways the Alde and Ore Association are used is encapsulated in Statement 29 *"The Alde and Ore Association are an important pressure group"*. Problems with funding from central government are associated with Statement 30 *"Central government is facing a severe cash problem. East Suffolk does not return Labour MPs, so they will not spend money here".* At the time of the survey there was a Labour Government. The implication of the comment is that money will not be spent in East Suffolk because conservative MPs are always returned in this area.

The results of work by the Tyndall Centre at UEA, Norwich and North Norfolk District Council concluded there is a need for more community dialogue and engagement with individuals, in their findings from the local rejection of the North Norfolk Coast SMP (Milligan and O'Riordan 2004) (See Section 3.4.4). To enable

greater involvement one of the prerequisites is that people are informed, and can find information about the issues of flood management. There may be a preference for finding out either from locals or other sources and this determined the selection of Q statements for Information Issues. The distribution for which is shown in Table 4.9.

Table 4.9 Information Issues

Information Issues		
Sub Category	**Total number of statements**	**No. of statements selected**
Local information source (LI)	7	5
Other information source (OI)	8	5
	15	10

This category is important to identify where local people get information from. Ignorance is seen as a barrier to effective public involvement (Blake 2001). If people have problems accessing information their preconceptions could be confirmed. This may cause or increase conflict with decisions, especially if options are narrowed (which could be the case in the present Environment Agency Strategy Plans for the Orford coastline).

Other problems with restricted information occur when it is seen as being controlled and closed (Mosse 2001). Therefore local people may prefer to get their information locally. There are five statements about local information sources, Statement 31 *"I get information about flood management from local people", I would listen to someone who has lived here all their lives, and worked on the river"*, Statement 32 *"I get information from noticing things like the line on the side of the town hall after the 1953 flood"* and Statement 33 *"I think some of the exhibition was difficult to take on board, because it was technical"*. The exhibition was put on by the Environment Agency in the 'Town Hall' in 2006 (Orford has a large brick built hall, and although it is a village the building is called the Town Hall). A statement denying information about a flood threat was chosen to test the local perception of flood risk, *"People do not believe in sea level rise and don't accept we are doing damage"* (Statement 34) and a comment about a preference for engaging with information from a local

pressure group *"The Alde and Ore Association informs us of what is going on in flood management"* (Statement 35).

Of the five other information sources, three statements reflect a problem with trusting information sources. Statement 36 *"It is difficult to trust people if they do not admit there is uncertainty in what they say"* is a statement that alludes to trusting information from scientists and Environment Agency engineers. This assertion needs testing in follow up interviews. The other trust of information statements are Statement 37 *"I would trust the Environment Agency not to tell lies"* and Statement 38 *"Scientists make a great fuss about global warming because they want extra funding for their research, so they make it sound worse than it is"*. The last two statements in this sub category are about information quality and source *"Information about flood management should be less complicated and intimidating, easy to read, and people should be comfortable to ask questions"* (Statement 39) and sourcing of information *"I would get information from the internet*" (Statement 40). Results will be followed up by post Q interviews to find why these problems or preferences exist.

4.6.2 Stage 2 - The Q-set selection

The statements were constructed to reflect the diversity of views, beliefs, ideas and concerns, as has been described in Section 4.6.1. These statements constitute the Q Set or Concourse and are listed in Table 4.10.

The statements selected had a balance between negative and positive statements as recommended by Schlinger (1998).

20 statements 3, 9, 11, 12, 13, 14, 15, 18, 19, 20, 22, 25, 27, 28, 31, 32, 33, 37, 39, 40 refer to positive things that can be done to achieve involvement.

20 statements 1, 2, 4, 5, 6, 7, 8, 10, 16, 17, 21, 23, 24, 26, 29, 30, 34, 35, 36, 38 have a more negative viewpoint, with statements about the problems with involvement.

The distribution has happened by chance, but it allows for selection across the positive and negative grid of the Q sort.

Table 4.10 40 statements selected for the Q sort

Statement Number	Statement	Sub Category
Individual Attitude Issues		
1	I am busy doing other things.	Busy (B)
2	I would join an organisation like the Alde and Ore Association to get involved.	Individual Involvement (IV)
3	If it was a practical situation and flooding was actually happening, then yes I would get involved.	(IV)
4	I think my opinion will not make a difference.	Disillusionment (D)
5	There are many surveys and suggestions but nothing actually happens.	(D)
6	Meetings are boring.	(D)
7	I would rather leave it to the people who know more about it and are more aware of the river.	Lack of Knowledge (LK)
8	I don't think flooding will happen in my lifetime.	Personal Involvement (PI)
9	I get involved because I have an interest in farming, sailing or protecting wildlife.	(PI)
10	People are cynical of politicians. I think they have a hidden agenda.	Lacking in confidence (LK)
Consultation and Participation issues		
11	Finding out by word of mouth, like the village shop, is terribly important to us.	Local People (LP)
12	The way for people in Orford to get involved is to phone up or write to their District Councillor.	Active Participation (AP)
13	The Environment Agency think that consulting people is important, they now do things differently, and consultation is better.	Trust Issues (TI)
14	I would listen to somebody normal, who uses the river the same as I do.	(TI)
15	I think consultation works and decisions are accepted if there is real honesty, and they tell you how it is.	(TI)
16	If they have made up their mind before consultation there is no real choice, and it is a waste of time.	(TI)
17	People do not want the Environment Agency knocking on their door to tell them about flood management.	Type of Consultation (TC)
18	What we need is an organisation that will represent us when we don't agree with what is going on.	(TC)
19	'Drop ins' in the village hall to ask questions individually are better than meetings.	(TC)
20	Local people involved in flood management should be invited to de-briefings.	(TC)
Governance Issues		
21	People are keen to get involved at the beginning but there is a lot of cynicism now because nothing has happened.	Individual Governance (IG)
22	People ought to write and protest more.	(IG)

Table 4.10 continued

Statement Number	Statement	Sub Category
23	When it comes to community things people have always helped each other, and you don't need to have it written down.	(IG)
24	The Environment Agency has not got the expertise of putting the message across to ordinary people.	Environment Agency Governance (EA)
25	I'm told there are many good people in the Environment Agency. They are well trained, want to do a good job, and find the money.	(EA)
26	The Environment Agency doesn't feel that the small number of people involved, are worth the billions that it is going to cost to save the coastline.	(EA)
27	Local Councils should be the main agent for sea defences.	Local Council Governance (LG)
28	We need to talk to the local councillors more.	(LG)
29	The Alde and Ore Association are an important pressure group.	Alde and Ore Association Governance AOA)
30	Central Government is facing a severe cash problem. East Suffolk does not return Labour MPs, so they will not spend money here.	National Government Governance (NG)
Information Source issues		
31	I get information about flood management from local people. I would listen to someone who has lived here all their lives, and worked on the river.	Local Information Source (LI)
32	I get information from noticing things like the line on the side of the town hall after the 1953 flood.	(LI)
33	I think some of the exhibition was difficult to take on board, because it was technical.	(LI)
34	People do not believe in sea level rise and don't accept we are doing damage.	(LI)
35	The Alde and Ore Association informs us of what is going on in flood management.	(LI)
36	It is difficult to trust engineers and scientists, if they do not admit there is uncertainty about what they say.	Other Information sources (OI)
37	I would trust the Environment Agency not to tell lies.	(OI)
38	Scientists make a great fuss about global warming because they want extra funding for their research, so they make it seem worse than it is.	(OI)
39	Information about flood management should be less complicated and intimidating, easy to read, and people should be comfortable to ask questions.	(OI)
40	I would get information from the internet.	(OI)

The Q sort was piloted with four participants, two male and two female. As a result changes were made to the instructions sheets to make them clearer and more understandable; a preference for the positive responses (statements most agree with) being on the left hand side of the grid matrix was facilitated (Appendix 4 shows the postal instructions for Q sorting). The two males who piloted the Q sort had an issue with some of the statements that they felt could be interpreted as 'double negatives'

but it was not thought appropriate to change some of the wording because this then could cause a change in meaning of the statement. In the Q sorts that were administered this was not identified as a problem.

4.6.3 Stage 3 - The P sample selection

The P-sample comprises the participants that need to be sampled to obtain maximum diversity and spectrum of opinions. To obtain this each participant who returned a questionnaire and gave contact details was sent, or had administered a Q sort. There were potentially 74people with contact details who had returned questionnaires. Their distribution through the knowledge and involvement categories are shown in Table 4.11 and included the 14 post questionnaire interviewees, who had also agreed to participate in the Q sort. Table 4.12 shows the distribution of the 39 people in the different knowledge and involvement categories who returned Q sorts.

Table 4.11 The distribution through the different categories of knowledge and involvement that includes those with contact details and returned Q sorts.

Levels of Knowledge and involvement	Total number of responses in each category	Potential number of respondents with details	No of Q Sort returns
High High (HH)	19	18	12
Low Low (LL)	17	8	5
High Low (HL)	20	12	7
Low High (LH)	5	5	4
No Classification (NC)	48	31	11

It has been stated that a typical Q study has between 30 and 40 participating sorters. Larger numbers can cause problems because they can reduce complexity and 'fine distinctions' that are an advantage of using this as a qualitative method (Previte et al. 2007). Depending on returns (as also shown in Table 4.11), there should be a range of respondents from the questionnaire with varying ages, knowledge and involvement. In this study everyone who returned Q sorts had been asked individually to take part, and all who were asked did return their sorts. The distribution through Knowledge and Involvement categories and age group are shown in Table 4.12

Table 4.12 Characteristics of Q sort returns by knowledge, involvement and age

Knowledge ↓ Age group →	20 and under	21-40	41-60	≥61	Total
High Knowledge High involvement (HH)	0	0	1	11	12
High Knowledge Low Involvement (HL)	1	0	2	4	7
Low Knowledge Low Involvement (LL)	2	1	2	0	5
Low Knowledge High Involvement (LH)	0	1	0	3	4
No Category (NV)	0	0	7	3	11

Efforts were made to find people in each category. Although it was easier to persuade people in the older age groups as fewer younger people (≤20) were known, or had responded to the questionnaire in the village. By the time the Q sort was administered the drama group in the village was not operating, and it was more difficult to access the 20 and under age group of younger people who had responded to questionnaires because they had not supplied contact details. The same problem occurred with the 21-40 age group, where fewer questionnaires were returned, and those that were also had limited contact details.

4.6.4. Stage 4 - Q-sorting

The process of Q sorting requires participants to sort the statements according to how strongly the statements were most like or least like their views on flood management. Ranking and scoring the statements reflects the importance of all the items in the Q set for the individuals doing the sort. The sort was carried out by placing cards that have the statements printed on them, on a large copy of the matrix. Each card had a number on the reverse that can be transferred to the place selected on the matrix at the end of the sort.

Instructions for the sort as recommended by McKeown and Brown (1988), asked the participants to sort the cards, into three piles, those most like their views, those least

like their views, and a central selection of those they feel neutral about. Participants then were asked to select the two statements they felt were most like their views and place them in the boxes under the +4 part of the grid, shown in Figure 4.7 on the left hand side of the grid. They must then consider the two statements that were least like their views and place them in the -4 grid boxes, on the right hand side of the grid in Figure 4.7. They will then need to carry on with, the three under the +3, three under the -3, 5 under the +2 and -2, 6 under the +1 and -1 and the rest in the neutral area of the grid. Participants need to be encouraged to look at the distribution and change any in places they do not feel happy with. Participants will then be asked to write the numbers on the cards in their position on the grid. It is said people like this method because it is more interactive and entertaining. They like physically sorting and re-sorting the cards (Eden et al 2005). The question for the participants to sort the question was:

What statements are most like your views or least like your views about involvement in flood management in Orford?

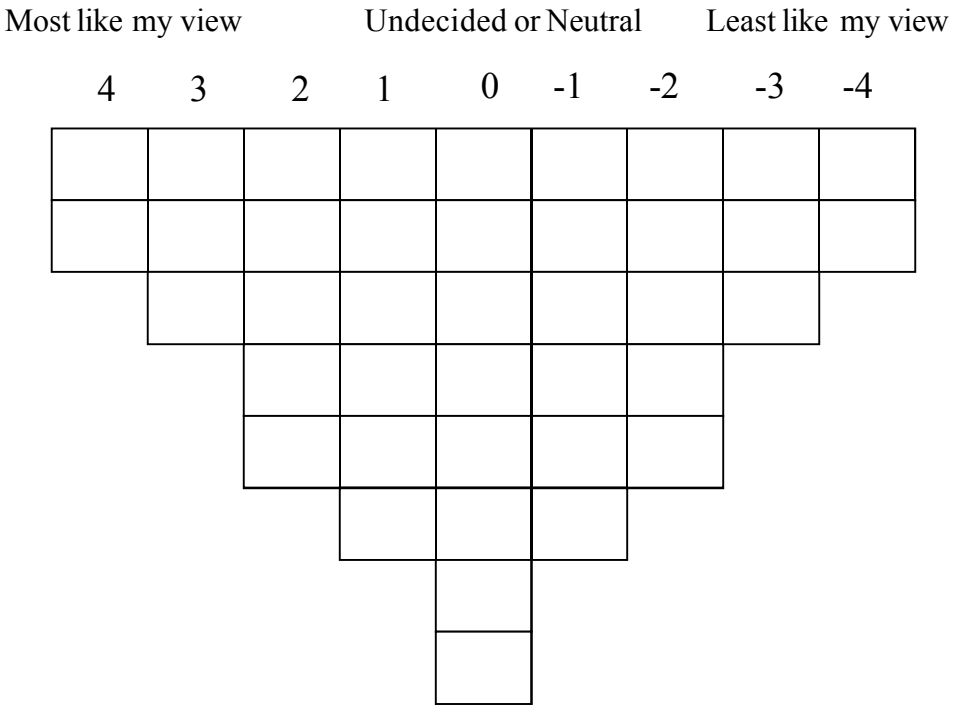


Figure 4.7 Answer sheet for the Q sort.

4.6.5. Stage 5 - Statistical Factor Analysis

Factors are calculated from inter-correlations that identify clusters that contain similar ranking patterns. When the data are analysed each statement in the rank is given a value, -4 will receive 1, -3 will receive 2, -2 will be given 3, until +4 which will receive 9. This is because the rank ordering shows the individuals' preference and shows what is more important to them. The middle score, 0 is a neutral point. "All Q sorts are anchored in the same way" (McKeown and Brown 1988, p35), around a point of no meaning where variation is dependent on individual self references (Stephenson 1974). The aim of the analysis is to identify individuals that may 'load' on the same factor and have sorted the statements in a similar way and will therefore have "similar discursive positions" (Previte et al 2007 p 139). Data analysis will use PQ Method computer software designed for the Q Method.

Q methodology employs a way of factoring persons as opposed to traits (statements of issues in this research). Instead of the usual factor array of persons in rows and factors in columns (R analysis) the reverse is devised in Q, with persons in columns and factors in rows.

	Individuals associated with different factor perspectives			
	HH	HL	LH	LL
Statements				
1.....				
2.....				
3.....				
N.....				

Figure 4.8 Factor array for Q sorts

This application of statistics means that subjects are grouped or group themselves through the Q sort (McKeown and Brown 1988). It does not follow that like-minded

people are identified, because we cannot assume that, but it allows for groupings of people that display similar choices of issues, and identification of like areas of concern, or preference. The sorting in Q displays observations around a common unit of measurement that McKeown and Brown (1988) refer to as "self significance", which means the selection is important to the sorter. This becomes the unit of measurement for Q.

The Q sort will be factor analysed to show patterns of relationships between respondents and within the knowledge and involvement categories. The higher the + or – loading on a factor (issue) the more representative the person is on that particular dimension. The significance of loadings will be assessed by a standard error calculation of:

SE=2.58 x1 / √39 (Schlinger 1969).

4.6.6. Stage 6 - Interpretation of Q results

Factor arrays will show a particular group's point of view or perspective, in terms of identification of the main statements in each Factor. Factors will be analysed with reference to the categories of coded statements that determined the statements, and the groups HH, HL, LL, LH, NC that the individuals belong to. Rankings need to be examined to identify the members in each cluster. Any unexpected clusters need to be identified. Previous assumptions need to be examined in the light of the responses given. It was anticipated that certain statements may form significant clusters. This could be demonstrated by identification of, for example, more local information sites as an important issue in the Q selection. Preferences in the Q selection that reflect a preferred outcome by method could also form clusters and imply dominant factors. This methodology was also demonstrated by Webler and Tuler's (2006) analysis, that suggested ways to improve participatory processes, and varied relationships to achieve this in environmental decision making (see Section 1.3.3).

Similar to Webler and Tuler's work, this research was looking for improved public participation in decision making. The Q design looks at both peoples' views of the process of involvement and their process preferences, to identify issues that may aid

or hinder people becoming more involved in flood management decisions. The construction of a correlation matrix for factor analysis in Q reflects the subjectivity that people can display that is 'not dependent on the effects of a built in measuring device' (Brown 1980). This can be said to be an advantage of Q but is also open to criticism, not necessarily for the subjectivity of the Q statement selection but for subjectivity in the interpretation of factor grouping of people's views.

One aim of the analysis is to use the classification from the questionnaire of people into the HH, HL, LL, LH, categories and the further category NC, to see if there is any pattern in the responses of people with different degrees of knowledge and involvement. In an attempt to be more objective when analysing any patterns of perspectives, those identified will be further verified and questioned by follow up interviews. Five Factors were identified and will be explained in the Results Chapter 5 Section 5.4.1. The procedure for the follow-up interviews is explained and justified in the next section.

4.7 Justification for follow up post Q sorts interviews

Follow up interviews after Q sort analysis are part of the iterative process of the research design towards a greater understanding of why people in an area of flood risk, such as the village of Orford, will or will not want to, or be able to, get involved in the flood management decision making process. That is, the use of Q methodology is part of the research process used towards abductive analysis (Johnson and Onweugbuzie 2004; Morgan and Whalley 2007) (See Section 4.2). This methodology has been utilised to produce insights towards an explanation of involvement and non-involvement in flood management. Interviews were also used to help test some of the assumptions of the Q methodology and analysis (Brown 1980), and search for preferences for methods of involvement that will be taken forward to a workshop for Q participants.

Follow-up interviews are an important aspect of Q methodology, often proposed in the literature, but not always reported as carried out in research. An analysis of papers and reports from four 'primers' and eight practitioners of Q methodology showed varying amounts of the use of questioning when the Q sort is being carried out or in post Q sort interviews, to verify researchers interpretations. Four 'primers'

were reviewed, three of which, Kitzinger (1999) Robbins and Krueger (2000), Previte et al. (2007) advocated the use of follow-up interviews. A fourth proposed posting narratives to respondents for comments (Webler et al. 2009). In practice, as shown in the Table 4.13 follow up interviews were not generally undertaken in the research reviewed. Table 4.13 shows a preference for using Q results in focus groups, further research or 'e' computer- surveys.

Table 4.13 Follow up practices in examples of post Q research

Reported in Research Examples	Carried out in a post Q sort interview	Post sort interview	Interview during Q sort	Other
(Eden et al 2005)		No	Taped	
(Valenta and Wigger 1997)		No		Q results taken forward and used in larger group surveys
(Webler and Tuler 2006)		No	Yes	Further research recommended
(Johnson. and Chess 2006)	Yes, (but not specified how)			
(Nicholson-Cole 2004)		No		Took results to focus group for verification
(Thomas and Watson 2002)		No		Comments written on an e-Survey
(Simmons and Walker 1999)		No		Focus Group to follow Q
(Raadgever et al 2008)		No		On line survey and report

Robbins and Krueger (2000) advocated interviewing to gain the respondents' own interpretation of the Q Factor they are identified with. In this research each interviewee was presented with the characteristics of the Factor they scored significantly in. This helped to assess their level of agreement and differences they had with statements identified with those for the Factor they were associated with. Robbins and Krueger (p. 640), proposed that this will "explore linkages between subjectivity and specific action", and also explain why certain factors are important, not just what factors are important. Eliciting the reasons for action and possible involvement is one of the important questions in this research.

Some tape recordings were made during Q sorts in this research as recommended by Eden et al (2005), and Previte et al (2007) and carried out by Webler and Tuler (2006). Eight participants out of the thirty nine responses were recorded during administering Q sorts. Whilst the tape recordings gave some insights into the reasons for preferences given, it was difficult for participants to read the cards, place them and give reasons at the same time. The difficulties with discussing their sorts while they were being carried out by participants made post Q sort interviews important.

Webler and Tuler (2006) suggest that finding out who prefers a certain kind of process can emphasise what preferences they have for involvement. Therefore follow up interviews asked questions to explore preferences and ask for method suggestions for the involvement process. If people are just asked what they prefer without any structure it is thought to make it more difficult to understand their perspective, and for them to respond (Johnson and Chess 2006). Therefore taking exemplars from each person's Q sort back to participants interviewed can help to more accurately understand how they may want to be involved.

Webler et al. (2009) suggested sending copies of the narratives of the Q perspectives to participants of sorts to ask for feedback. This was feasible in their research because the Webler study was directed at 'experts' in management. However in this research a face to face follow up interview was felt to be more appropriate. This is because the local people in this study are not experts and therefore would need prompts to help suggest reasons for their sorts. It was therefore thought necessary to have the results of their sorts communicated back to them. Local people not directly involved in flood management but involved in the research, will need reminding of their responses and prompting for preferences through a personal discussion.

One comment on a Q sort return showed the respondent did not understand how the complexity of the sort, with so many options, could have 'reproducibility' of results. Concerns of this sort and others not anticipated can be addressed in personal interviews. The research aims to identify some of the problems and motivations and recommend ways towards greater inclusion of a local population. These problems, motivations and recommendations will be discussed in the results Chapter 5 and concluding Chapter 6.

4.7.1 Procedure for Post Q follow-up interviews

Different groups of statements were associated with different people after they had Q sorted and their choices had been analysed (See Section 5.3). People selected for interview had the highest loading scores produced by the PQ method computer analysis and therefore loaded the most on each of the Factors analysed (sort scores can be found in Column 6, Table 4.14). Interviewees for this follow-up process were therefore selected for their statistically higher loading in each of the factors, although it is understood that statements selected by participants will not be a perfect match. The identification of discrepancies drawn from comments (Kitzinger, 1999) is part of the abductive process to find explanations and eliminate some possibilities (Thomas and Watson 2002). Therefore, interviewees will be asked for the reasons why they did not choose statements characteristic of the factor, as well as the ones they did. The statements they preferred will also be reviewed for their reasons for selection.

Three participants from each Factor were selected. All had the highest scores in each Factor characterised and were questioned to confirm characteristics of the five perspectives. However a further respondent was added from Factor 5 that made four from this perspective because there were people who weighted significantly positively and negatively to the statements, a dichotomous factor. The distribution of interviewees for post-Q interviews was therefore:

Table 4.14 Q respondents with the highest scores in each Factor

Factor	Participant	K/I	Gender	Age	Sort score	Date of interview
1	03	HH	F	≥61	0.69	14/10/10
1	36	HH	F	≥61	0.64	17/10/10
1	28	HH	M	≥61	0.61	2/11/10
2	10	NC	F	40-60	0.76	14/10/10
2	18	HH	M	≥61	0.68	1/11/10
2	05	LH	M	≥61	0.71	18/10/10
3	09	NC	M	≥61	0.61	13/10/10
3	02	LL	M	≤20	0.59	12/11/10
3	37	NC	M	41-60	0.55	6/11/10
4	24	LL	F	21-40	0.62	27/10/10
4	32	LL	F	≤20	0.61	9/11/10
4	34	NC	F	41-60	0.48	20/10/10
5	35	NC	M	≥61	-0.72	5/11/10
5	04	HH	F	≥61	-0.56	11/10/10
5	38	HH	M	≥61	0.54	3/11/10
5	25	HH	M	41-60	0.52	15/10/10

During interviews verification of the Q sort statements was conducted by asking questions about the statements they chose in their sorts. The final question in each interview was to elicit preferred methods of involvement. From transcripts of the interviews the main problem areas and preferences for methods were also sought. Interviews were tape recorded and transcripts produced for coding. Three stages of coding were undertaken and are reported and analysed in Chapter 5 Section 5.5 (examples from the stages of coding are found in Appendix 5).

When coding was completed, and issues for people about problems with participation in flood management identified, issues were taken to a workshop for 'priority testing'. Method preferences cited in interviews were also taken for analysis at the workshop. The planning and format of the workshop are explained in Section 4.8.

4.8. Workshop methodology

The main reason for the workshop was to further review any differences in problems or preferences for methods for involvement in flood planning with regard to people's different levels of knowledge and involvement (identified in the questionnaire), discourses (from interviews), or possible different perspectives (identified from Q Analysis).

The aim of the workshop was therefore to find if there was a consensus between participants with different perspectives about the most important problems to overcome and to prioritise issues. A further aim was to also identify possible solutions and contribute answers to Research Question 4 "What ways and methods can be identified to improve participation in coastal flood management?"

A cross section of people representing different perspectives, were sought for the workshop. However finding people across the population of the five perspectives proved more difficult than anticipated. Thirty of the thirty two people (seven respondents who completed the Q sorts did not have answers that were classified as significant) who had defined sorts in the Q Methodology of a total Q return of thirty nine, were telephoned for a commitment to attend the workshop (two were not asked

to participate because of time constraints and illness respectively). Eleven had other commitments away from the village for the date suggested, but did express a willingness to participate if asked again. Examples of the reasons given for not being able to participate were: one young person was busy with work, one was supervising builders; three second home owners were not visiting that day; another young person was away at school; another older person had a preferred lunch appointment in the village and one felt too old to be useful. Only two people refused without reason. For those who said they could come, an invitation was sent with details and an explanation of the workshop (a copy of the invitation is to be found in Appendix 6).

Three people were sought from each of the Q Factor groups identified in Section 5.3.1, because this was felt to be a realistic number to achieve from initial responses. However, this number of people also proved difficult to persuade to commit to attend the workshop. The attendees at the workshop constituted four people from Factor 1, one had High Involvement. Two attendees were >61 and two 41-60. No one from Factor 2 attended the workshop. Factor 3 had one attendee from the over >61 age group, who was of the NC Category. Two participants attended from Factor 4. One of these participants was a young person who was paid to help with the lunch, as an incentive to attend. She had responded to all other requests to take part, but only through repeated personal contact. This participant had Low Knowledge and Involvement in flood management. A second Factor 4 participant also had Low Knowledge but High Involvement and was very willing to help and attend. Factor 5 had one participant of High Knowledge and Involvement in flood management issues. Table 4.15 shows the attendees at the workshop, their age group, Knowledge and Involvement levels and to which group they were allocated. Two people from Perspective 2 did return postal responses to the workshop questions but they were not included in the workshop results, as they had not been involved in workshop deliberations. However their views were taken into account when analysing individual responses.

There was also an absence of participants in the 21-40 age group as, although three were asked, two Factor 3 (LL and HL), and one Factor 4 (LL) none could attend. Factors 3 and 4 included all the younger participants. In total eight people attended the workshop, along with an additional person to scribe and facilitate for one of the

groups. A local District Council officer interested in the work also attended to observe.

Attendees were split into two groups as shown by Table 4.15 with mixed knowledge, involvement and perspectives. The reason for the mixed groups was to see if there was a consensus about which issues (or barriers) from the post Q interview results were the most important to address.

Table 4.15 Distribution of people with different levels of Knowledge and Involvement and perspectives and their group allocation

Factor/Perspective	Age Group	Knowledge	Involvement	Group
1.Knowledgeable	≥61	H	H	1
1.Knowledgeable	≥61	H	H	1
1.Knowledgeable	41-60	H	H	2
1.Knowledgeable	41-60	H	L	2
3.Pragmatic	≥61	NC	NC	1
4.Locally Attuned	≥61	L	H	1
4.Locally Attuned	≤20	L	L	2
5.Disengaged	≥61	H	H	2

The attendance rate for the workshop was 21%, eight people out of 39 people asked. It was difficult to persuade people to attend the workshop and it takes constant requests and reminders to get appreciable numbers. For comparison a workshop in May 2010, carried out by Essex University, asked Alumni to attend a workshop to explore what they would like the Alumni Association to do for them. Two workshops of 12 people were planned. The first workshop had an attendance of three out of the twelve who said they would attend, and after much effort through e-mail and reminders a second workshop had five out of the 12 people attending (Willis 2011). Similarly a local Suffolk Coastal District Council (SCDC) 'Futures' project advertised a meeting by leafleting 7000 houses in the area. The result was 30 people attended the meeting (Parker 2011). Personal contact will have some effect in achieving attendees, and it may be the only way to attract appreciable numbers, but it is not necessarily successful, even when the participants are known to the organiser.

4.8.1. Workshop format and exercises

Table 4.16 shows the plan for the workshop day.

Table 4.16 Plan and methods for activities for the workshop

Time	Activity	Method
10.30-11.00	Welcome introductions and coffee	
11.00-11.30	Explanation of the barriers to involvement identified from post Q interviews	Power point slides
11.30-12.15	Individual prioritisation of barriers (see Appendix 7), followed by discussion of barriers in groups to find any consensus	Flash cards
12.15-13.00	Lunch and Discussion	Discussion of priorities
13.00-14.15	Solutions to prioritised barriers Method prioritisation	Group discussion Handouts for marking preferences
14.15-14.30	Summing up and thank you for coming	Results sheets collected from groups and individuals

Analysis from the interviews that followed the Q sorts produced an initial twelve issues for improved involvement in coastal flood management, which were reduced to ten for the workshop. The reason for this was that issues presented needed to be seen as problems to be solved so the problem of 'Not feeling part of any community in the village' was introduced to include issues with the Parish Council, and Alde and Ore Association (see derivation of issues in Section 5.5). Explanations of how the issues were derived were described to attendees of the workshop using a slide presentation. Laminated cards with illustrations of the barriers were also distributed to groups (see Appendix 7 for examples).

The issues identified from follow up interviews for the workshop were:

1. Lack of trust in organisations
2. Little interest in the sea or river
3. Lack of knowledge and awareness of flood risk
4. Lack of trustworthy and accessible information
5. No time and apathy
6. Lacking in confidence
7. Not feeling part of any community in the village

8. Lack of funding
9. Few practical opportunities
10. Problems with the process of solutions and decisions

Participants were first asked to consider individually what they thought were the most to least important of the barriers then give them a priority score on a scale from 10 to 1. 10 was the most important issue to address. They were told it did not matter if they used numbers more than once. The aim was to see what they felt were the most significant issues that deterred involvement in flood planning in the village. It was also thought that individual numbering would help them to start thinking about the issues and aid the group discussion that was to follow. This strategy did seem to help ease discussion of what they felt to be important. Participants were also told that after group discussions, numbers on their individual sheets could be shown to be adjusted if they had changed their minds.

Patterns in individual choices that emerge from the small workshop sample (eight people) are not going to be conclusive. However, if there is any consensus between individuals who select from different options, it is worth noting, and could lead to a greater understanding of what the barriers are to involvement in flood management. If problems can be identified and solutions suggested by those affected it has the potential to give direction to future participatory planning. The individual priority ranking was also used as an introductory exercise for the group discussion that followed.

The workshop participants had two groups, to get as many different perspectives as possible within the groups. Table 4.17 outlines the characteristics of the groups. The age profile in group 1 was higher but the distribution of perspectives was a more major concern at the time. Group 2 had two people with low involvement, which may or may not have affected the outcome of important barrier choices. Each group also had a facilitator scribe. There was a mixture of knowledge and involvement from the questionnaire results and a mixture of perspectives from Q results.

Table 4.17 Characteristics of the two discussion groups

Group	Code ID of Participant.	Factor Group	Knowledge	Involvement	Age Group
1	03	1	H	H	≥61
1	15	1	H	H	≥61
1	09	3	NC	NC	≥61
1	13	4	L	H	≥61
2	36	1	H	H	41-60
2	04	5	H	H	≥61
2	11	1	H	L	41-60
2	32	4	L	L	≤20

Following group discussions, the most important issues emerged from each group. These were discussed over lunch and displayed on the walls until after lunch. After lunch the major issues identified were noted, especially any similarity between the selections of the two groups. Sheets were given out for each of the problems selected by the group and solutions sought for the barriers identified.

An example of the A4 solution sheet given to attendees is shown in Figure 4.9. This is a copy of a slide presentation at the workshop for 'Problems with few practical opportunities' (Issue 9). Each slide had examples of statements from follow up interviews to illustrate what was meant by the issue. Examples of the other slide/solution sheets can be found in Appendix7)

Problem

There are few opportunities to get involved, because:

- *There are few events that can be joined that motivate people*
- *People ought to be encouraged to write and protest more*
- *One event is not enough, especially when there is no opportunity for feedback*
- *There are no practical ways we can get involved*

Solutions suggested:

Figure 4.9 Example of an explanation slide and heading for a solution sheet

To aid solution suggestions a final slide was presented that included a display of methods and solutions derived from post Q interviews (see Figure 4.10). A copy of

the method suggestions were also given to each person in each group. This was to not only to help group discussion, but also to mark up for individually preferred methods. Participants were asked to circle their own preferred methods. The methods and solutions suggestions were explained for an understanding of the terms used. The terms that needed explaining were: highjack other meeting; informal networking; grass root movement; active protest, self help; SCDC 'Futures' project, and the EPP.

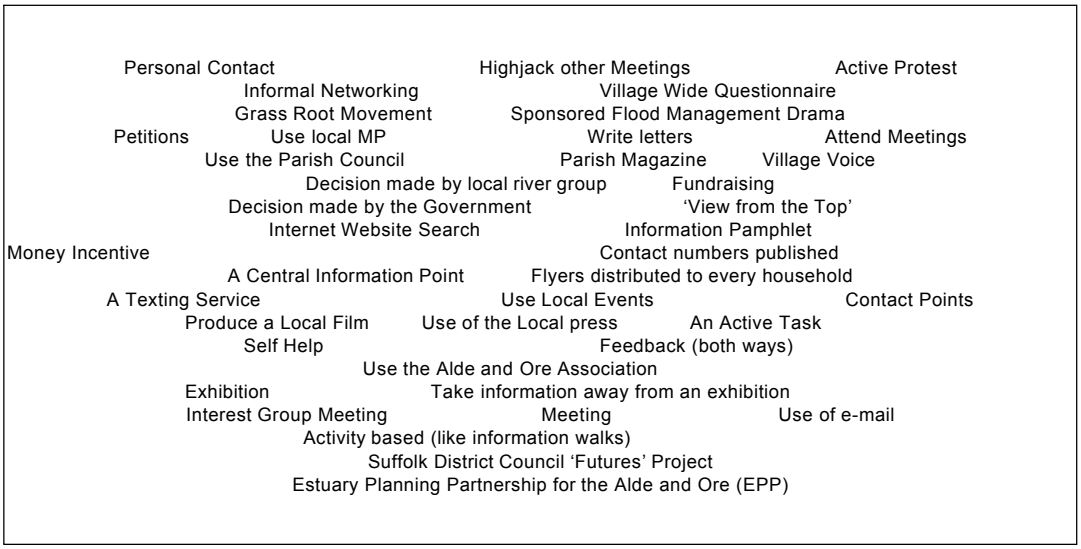


Figure 4.10 Copy of the methods of involvement in flood management slide

At the end of the workshop marked preferences for methods sheets were collected from individuals, together with the results of the group discussions. The results of the analysis of this data, to aid the answer to Research Question 4 'What ways and methods can be identified to improve participation in coastal flood management?*'* is reported in Section 5.5.5 and 5.6.

4.9. Summary

The methodology outlined in this chapter has stemmed from a theoretical framing that proposed a pragmatic approach. This ontology seeks a way to find answers to practical problems. In this case, the feelings the population of the village of Orford have about participation in coastal flood management. The methodology was determined by the aims of the research (see Section1.4 and 3.4) and also planned

with reference to ideas by Morgan (2007) (see Section 4.2) where pragmatic research can be structured to find:

1. Behaviour patterns, (lines of action), shown by involvement in flood management of people in Orford, who responded to the survey at the time of the research in 2008. This was assessed by the questionnaire.
2. Reasons for the respondent's behaviour patterns (warranted assertions). What knowledge, barriers and enabling factors are identified? This was assessed by the questionnaire to find current levels knowledge and involvement. Interviews in 2009 and 2010 were used to identify barriers and enabling reasons for involvement, and the Q methodology, in 2009, which helped identify different perspectives about flood management
3. Consequences of behaviour patterns (workability). This was assessed in terms of respondent's preferences for different ways to be included in flood management in a workshop in 2011 and shown by statements selected in Q sorts

The resulting data from the questionnaire, interviews, Q methodology and workshop is analysed in Chapter 5.

Chapter 5 Analysis of Results

5.1. Introduction

The main aim of this research has been to explore ways of engaging with the public in order to improve participation in coastal flood management. To achieve this objective, research aims were constructed (see Section 1.4), and translated into research questions. Derivation of the questions has been explained in Section 3.4. The research questions are shown in Table 5.1.

Table 5.1 Research questions

Research Question 1	Research Question 2	Research Question 3	Research Question 4
What knowledge does the local population have of the causes, responsibilities and management of coastal flooding?	*What involvement do local people have in coastal flood management?*	*What are the barriers that people have to participation in coastal flood management?*	*What ways and methods can be identified to improve participation in coastal flood management?*

This chapter presents analysis and results based on the application of methods used in this research. It has been an iterative process, where the findings of one method, have lead to the design of the next. A questionnaire provided the means to classify a surveyed population into their levels of knowledge and involvement in flood management and address Research Questions 1 and 2. A classification of people with different levels of knowledge and involvement was used to assess their possible preferences for participation in flood management. As part of this process people with different levels of knowledge and involvement were interviewed to produce statements about flood management that would identify what was most like or least like their views in an application of Q methodology (Q). From an initial idea that a limited number of approaches will not include a great proportion of a population, as also recommended by Keen et al (2005) (see Section 1.2.1) and demonstrated by

problems with the 2004 Environment Agency flood strategy described in Section 3.5.2, Q was used to test the idea that people with different perspectives may have different preferences for participation in flood management. This premise is also explored in the workshop phase of this research and helps answer Research Questions 3 and 4.

The analysis of results is explained in: Section 5.2 for the Questionnaire; Section 5.3 for the findings of Q; Section 5.4 for an explanation of the Q follow-up interviews; 5.5 for the results and recommendations from the workshop and Section 5.6 for a summary of the research findings and possible future changes.

5.2. Questionnaire analysis and results

There were 109 questionnaire returns. Questionnaire answers explored local people's understanding of climate change and its consequences, specifically coastal and estuarine landscape change. Changes can be both natural and man-made. Man-made changes are the result of strategies and planned policy, and are described in Chapters 2 and 3 of this thesis. The questionnaire also assessed the kind of involvement respondents had, by finding out what groups they belonged to, and the meetings they attended about flood management.

There were 13 questions in the survey, eight questions, 3, 4, 5, 6, 7, 8, 9, and 13 addressed the knowledge that local people had about potential flooding in the Orford area (see Appendix 1 for a copy of the Questionnaire and mark allocation, Table 4.3 for the mark scheme and Section 4.4 for an explanation of the knowledge questions). Questions included what the respondents knew about the causes and consequences of flooding and its potential increase (Questions 3, 4, 5, 6, and 7), who they thought was responsible for flood management (Questions 8 and 9), and what strategy options they would prefer to see to the question of flooding, with reasons for their choices (Question 13).

There were four questions in the survey (Questions 2, 10, 11, and 12) that related to how involved people were in flood management in Orford. Question 2 asked individuals for the type and number of groups they were involved in, Question 10

asked what they knew about flood management plans, and Question 11 the meetings about flood management they had attended. Respondents were also asked for their preferences for meeting types they might attend in Question 11, and if they would commit to being involved in flood management in the future in any way in Question 12.

Question 1 of the questionnaire was used as an introduction to focus people's responses on their knowledge and involvement of flooding in the village. This question was not assessed. Initially it was thought it could be an indication of the importance of flooding perceived by respondents, which up to a point it is, but could not be taken as an indication of involvement. The question was also used to compare the findings of a Parish Plan survey carried out in the village in 2005 that aimed to find out the most important issues to villages, which at that time was affordable housing (Orford Parish Plan 2005). The issues identified in the 2005 Parish Plan survey were taken for comparison for this survey in 2008. The results in 2008 did seem to bear out the fact that increases in flooded land mattered to respondents more. 66 responses (61% of the 109 who returned surveys) responded to 'increases in flooded land', shown in Table 5.2. Loss of access to the coast and preserving old buildings was also of similar concern. Less so at this time was new building.

Question 1
To what extent do changes in and around Orford matter to you?

Table 5.2 Number of responses (out of a total of 109) to changing land uses around Orford (Respondents selected one response for each landuse)

Land use Change	Very important	Quite important	Neutral	Not very important	Unimportant
New building	34	35	23	7	0
Preserving old buildings	63	31	8	1	0
Decrease in farmland	50	28	20	2	1
More nature reserves	18	34	36	7	3
Loss of access to the coast	60	27	8	3	1
Increases in flooded land	66	21	10	1	0

5.2.1. Analysis of knowledge questions 3, 4, 5, 6, 7, 8, 9 and 13

Question 3
If you are a member of a group, how could you or your group, be affected by local flooding?

This question sought the knowledge that local people may have about the consequences of flooding to them personally. As opposed to Questions 5, 6 and 7 that was 'testing' knowledge about the causes and consequences of flooding in general. The results are shown in Table 5.3. One mark was awarded if the answer was a response of a recognisable consequence of flooding to a group they belonged to. 48% of people responded in this way and 52% recorded nothing or said no in their answer.

Table 5.3 Reasons given for the effects of flooding.

Reason given	No of people	Percentage
Flooding would affect sailing	20	18
Flooding would affect amenity	9	8
Flooding would affect business	6	5
Flooding would affect farming	5	4
Flooding would affect transport and services	4	3
Flooding would lose habitats	5	4
Flooding would cause loss of home	3	2

The major effect identified from this survey was that of sailing, followed by effects on amenity and business. Local people involved in sailing and its close association with the river could be more motivated to answer the questionnaire. 27% of respondents were sailing club members.

Question 4
Do you think the Suffolk coast is going to have less, the same, or more flooding from the sea in future?

The degree of flood risk felt by local people along the Suffolk coast may vary over time. The response of this sample, in 2008, shows that there was a high proportion of people that perceive flooding as a threat, as shown by Table 5.4.

Table 5.4 Perceptions of future flooding along the Suffolk coast

Perception	Number	Percentage
Less	0	0
The same	20	18
More	84	77
Don't Know	5	5

77% of respondents thought there would be more flooding from the sea in the future. For this question the time scale of the 'future' was not specified. It has been considered that perceptions of the future could be aided by specifying time periods of a short term of 0-20 years, a medium term of 20-50 years and a long-term of 50-100 year intervals (EA 2013). This could be said to be particularly useful for structuring management policy (Lorenzoni et al. 2007), but local people have been noted to have difficulty in visualizing the longer time scale, and therefore it was not specified in this question (Tonn et al. 2006). Epoch terminology is also a concern for the Chair of the Deben Estuary Partnership, who thinks local people do not relate to Environment Agency time scales, and would respond better to terminology such as imminent, near future, or future scenarios (Block 2013). The question was looking for a perception of more immediate flood risk, which may explain the higher proportion of responses due to recent experiences. The information in the questionnaire included a photograph of recent flooding in November 2007, which would have been a recent reminder of flooding in Orford (see Appendix 1 for a copy of the Questionnaire). The photograph was used to focus the participant answering the questionnaire on flood issues that they could relate to locally. This may have influenced some answers, but the proportion is still high.

Other research has also emphasised increased awareness of flooding when it has been personally seen or experienced. The question of personal experience was not asked in this questionnaire but the proximity of Orford to the town of Aldeburgh (see Figure 4.2), where studies were made by Harvatt in 2005, may give an indication of the effect of flood awareness. Her research showed a 50% awareness of Environmental Agency Flood Maps when local people had experience of the serious floods of 1953, whereas in other areas they were only 25% aware (Harvatt 2005).

No-one in this survey thought there would be less flooding and 18% thought that flooding would remain the same. The relatively high awareness of flooding and its example as a contemporary phenomenon from real life (Yin 2003), indicate that this is an appropriate case study area to explore the issue of flood risk and ideas to manage potential coastal flooding.

The answers to Question 5 in Table 5.5 show the choices respondents made to what they thought caused flooding along the Suffolk coastline. Respondents were generally quite well informed about the natural causes of flooding. Many identified the 'natural' phenomena of tidal surges, sea level rise, melting ice caps and glaciers, increase in storms and onshore winds as the main causes. The fact that so many people thought there would be increases in sea level implies that they recognise the significance of climate change, if that is what they think caused the rise. Ideas about climate change will be further explored in the interview phase of the research. The issue of uncertainty about climate change and its consequences discussed in Chapter 2 Section 2.2 also needed further investigation in follow up interviews and testing in Q. Table 5.5 are responses to Question 5, which is:

Question 5
What do you think causes flooding along the Suffolk coast?

Table 5.5 Answers to causes of flooding along the Suffolk coast
(Respondents could choose as many responses as they thought caused flooding.)

Causes	Number of responses	Percentage responses
Sea level rise	73	67
Melting polar ice and glaciers	54	50
Increase in storms	53	49
Tidal surge	78	72
Offshore winds	22	20
Onshore winds	46	42
Land subsiding from west to east in the UK	36	33
Decrease in sand and shingle on beaches	36	33
Increase in sand and shingle on beaches	14	13
Loss of sea defences	101	93
Increase rainfall	26	24

Table 5.5 shows the loss of sea defences was most often identified as the cause of flooding along the Suffolk coast. This is due as much from management decisions, as from natural phenomena. Maintenance and repair to estuarine and sea walls and 'holding the line' is generally the solution preferred by local people (see Table 5.9). However, in the present climate of funding cuts and a preference in some areas for more natural solutions such as 'managed re-alignment', a 'loss' of sea walls is seen as the consequence (Section 2.4 for an explanation of these defense strategies). A lower number of responses identified phenomena that are unlikely to cause flooding, such as offshore winds, an increase in sand and shingle on the beaches. The distribution of answers for this question shows a good to reasonable understanding of the causes of flooding by respondents, which will be reflected in knowledge scores. Question 6 asked for additional knowledge of the causes of local flooding.

Question 6
Is there anything else that you think might cause flooding along the Suffolk coast?

	Responses
Not enough money spent on repairing existing defences	21
Dredging for ballast	8

Other responses given by one or two people were: dredging for access to ports; climate change; tidal range; prevailing NNE wind; narrow inlets; deliberate plan to protect some areas and flood others; walking the river walls by people and cattle; opening up the sea wall at Slaughden; a second tidal surge; flood barriers elsewhere; wind and tide combined; increase in tarmacing of roads; lack of thoughtful planning; increased amount of water pumped from marshes; increased tidal flow and speeds; removal of shingle; meteoric impact/ seismic disturbance/ increase in sea temperatures.

The majority of responses to other causes mostly stated that not enough money was spent on existing defences. This is related to the 'loss of sea defences' in Question 5, but highlights the concern for lack of funding as discussed in Section 2.5. This was identified by local organisations such as the Estuary Planning Partnership for the Alde and Ore and the Alde and Ore Association. Many of the early reports in the Alde and Ore Association literature (Andren 2007) were concerned about a possible

breach in the river at Slaughden, a vulnerable bend between the river Alde and the North Sea at the northern end of Orfordness (see Figure 3.5), but this cause was only cited once in these findings. This demonstrates that concerns and emerging issues do change over time.

An additional concern was the effects of offshore dredging. The debate about dredging, highlighted at a Tyndall Conference at the University of East Anglia, is ongoing (O'Riordan 2008). O'Riordan stated that the anxiety about dredging along the east coast would not go away until there was more research that proved or refuted its effects. It has also been identified as a potential problem by the Suffolk SMP2 consultations, but the idea was thought questionable and rejected at a SMP Consultation meeting in 2009 as having no scientific basis. A Defra report using modelling of sand transport at sea also had inconclusive results (Defra 2005b). However, there are also reports from research that appears to prove the opposite. The Marine Information Network of Friends of the Earth, Marinet, in their 2009 newsletter, described evidence that 'it is infill of the offshore dredged pits from the surrounding sea bed which causes beach draw-down' (Gowen and King 2010). Land behind the coast then becomes more susceptible to flooding. Debate about the effects of dredging appears to be inconclusive, and ongoing.

Question 7

If sea level rise causes more flooding, which of these local land uses do you think would increase, decrease, remain the same or are you unsure?

The answers to this question are found in Table 5.6. It was noted that not all respondents made responses for each land use, but a high proportion out of 109 respondents did answer each question. It was also noted that there were higher responses from people who considered there were decreases in some land uses of crop, grazing farmland and a threat to coastal and river footpaths. It has been said that losses can be felt more keenly by people than gains (Bateman et al. 2006). These results would seem to validate this finding. Farmers own most of the land behind the sea and river walls, and will be most affected from flooding in these rural areas. Walking the river walls is also a much used recreation in this area. If the walls are

breached by rising water levels, even when this is temporary, damage can occur which leaves walks disjointed and in some cases inaccessible.

Table 5.6 Responses to changes due to coastal flooding.

Land use	Increase in this land use	The same	Decrease in this land use	Unsure	Total Responses out of 109
Salt marsh	65	10	14	11	100
Mud flat	52	6	20	18	96
Beach	5	13	63	15	96
Crop farmland	8	4	84	3	99
Grazing land	8	3	81	3	95
Salty lagoons	65	9	4	11	89
Sand dunes	9	7	46	23	85
Housing	6	11	61	10	88
Coastal and river footpaths	7	4	86	8	105

Responses that showed knowledge of the consequences of increased coastal flooding were: increases in salt marsh; mud flats and salty lagoons. It could be argued that increases in salt marsh will only happen if local conditions are favorable. Salt marsh development can depend on the level of insurgences by the sea and consequential build up of material, and also the changing nature of seasonal currents and sediment flow (Astley-Reid 2012).

Most people selected changes to land use that were decreases in crop and grazing farmland, and a decline in coast and river footpaths. Potential decline in housing was also identified as an important consequence of flooding. There were significantly fewer responses to land uses staying the same, or from respondents who were unsure (responses in columns two and four of Table 5.6). How people can be informed of change locally and be helped to adapt or accept change will be reviewed in Section 5.4.4 and 5.6 using the results of the workshop. There are also several local projects attempting to find more innovative ways to distribute information and encourage local participation. These projects include the ‘Futures’ project described in Section 3.5.3 and the DEP project described in Section 3.5.1.

Responses to Question 8 and 9 that asks who is responsible and most responsible for flood management, are found in Tables 5.7 and 5.8. As with Question 5, respondents could select as many of the options presented that they felt were correct (see instructions on the questionnaire in Appendix 1).

Question 8
Who do you think is responsible for managing flood defences around Orford?

Table 5.7 Responses to who is responsible for flood management decisions

	Numbers of responses identifying those with responsibilities for flood management	**Not responsible for flood management**	**Not sure**
New OrfordTown Trust	18	48	14
Orford Parish Council	14	50	13
Suffolk Coastal District Council	73	10	7
Suffolk County Council	62	18	17
The Environment Agency	91	1	2
Defra (Department for the Environment, Food and Rural Affairs	50	17	19
Farmers and Landowners	30	38	17
RSPB	19	50	16
English Heritage	12	50	15
The National Trust	18	43	12
SuffolkCoast and Heaths Unit (AONB Area of Outstanding Natural Beauty)	23	45	12
The Estuary Planning Partnership of the Alde and Ore	30	38	15
The Alde and Ore Association	15	54	10
Regional Flood Defence Committee	69	54	6
EERA (East of England Regional Assembly)	22	28	29
EEDA (East of England Development Agency)	23	36	26

(Note; EERA and EEDA have been disbanded due to a restructuring of regional government brought about by a change of government in the 2010 election).

Question 9
Who do you think is *most* responsible for managing flood defences?

Table 5.8 Statements made as to who is the most responsible for flood defence.

Most responsible for flood management	Number of responses	Percentage of responses
Environment Agency	59	54
SCDC/local government	13	12
The government	16	15
Defra	2	2
Treasury	2	2
OrfordTown Trust	1	1
Natural England	1	1
Bit of everyone	1	1
Not sure / no response	14	12

From Table 5.7 and Table 5.8, responsibility for managing flood defences was considered to be mostly that of the Environment Agency. Defra policy from Making Space for Water in 2007 (Defra 2007a) up to the current Flood and Water Management Act (Defra 2010), cite the Environment Agency as chiefly responsible for coastal defence plans and funding decisions (See Section 3.4.1 and 3.4.3 for further explanation). The Agency was also identified as most responsible by a significant number of people (54%) in this survey. The Environment Agency is producing a combined estuarine and coastal strategy for this part of the Suffolk coast. The Alde Coast and Estuary Strategy (ACES) is now one part of this Strategy for planning physical changes (Section 3.5.2). The consultation aspect of the strategy for the Alde and Ore Estuary in 2011 and early 2012, is embedded in the 'Futures' project of Suffolk Coastal District Council (Section 3.5.3). The close working of the Environment Agency and Suffolk Costal District Council is an attempt to integrate plans and fulfil the aim of Integrated Coastal Zone Management (ICZM) (see Section 3.2.2). The Shoreline Management Plan, SMP2 (Section 3.4.4), is also relevant to the Alde and Ore Estuary because there is both river estuary and coastline for a long stretch at Orford (see Figure 3.5).

With reference to Table 5.7, Suffolk County Council was not directly responsible for coastal flood management at the time of the questionnaire but has since appointed a Flood and Coastal Policy Officer who has flood management for inland coastal waterways and organizing coastal fora as part of her brief (Burch 2011). Suffolk County Council officers are also represented on the Regional Flood Coastal Committee (RFCC). The RFCCs fund and make decisions about flood management by determining Environment Agency flood defence policy for their area of jurisdiction, overseeing environment agency business plans, and monitoring their performance (see discussion in Section 3.3.3). Many respondents to this research also identified that individual landowners like the National Trust, RSPB and Farming Landowners have, or there are plans for them to have, an increased responsibility for flood protection along their own coast and river boundaries (Lohoar 2010).

Mistakes were made by some respondents in thinking that the Estuary Planning Partnership of the Alde and Ore (See Section 3.5.1 for a discussion of their composition and aims), or the Alde and Ore Association which is a local flood management pressure group, have any responsibility for flood management at the time of the questionnaire. This could indicate a need for increased awareness-raising among some people to clarify the responsible agencies and to whom to address flood management issues. This could be a problem that inhibits involvement. Follow up interviews administered in this research will explore these questions.

Question 13

Which of these options: Hold the Line; Managed Realignment; No Active Intervention would you prefer to see along the coast at Orford?

From the 109 responses to strategy decisions, Table 5.9 shows that a substantial percentage wanted to ‘Hold the Line’ (64%), followed by ‘Managed Realignment’ (24%). To a much lesser degree a combination of ‘Hold the line and Managed Realignment’ was considered an option (6%) with ‘No Active Intervention’ only chosen by two individuals.

Table 5.9 Number of responses to flood management option strategies

Strategy	Number of responses	Percentage of responses
Hold the Line	70	64
Managed Realignment	26	24
No Active Intervention	2	2
Combined Hold the Line + Managed Realignment	7	6
No response	4	4

Responses given when people were asked an open question about the reasons for their choices were as described below.

Reasons for Hold the Line

A key was used to code statements for the 'Hold the Line Management Strategy' and statements assembled under the headings of:-

LE Economic Loss
LW Loss of Walls
LF Loss of Farmland
LH Loss of Habitats
LT Loss of Trust

Economic Loss (*LE*) reasons:

- We must not lose facilities like tourism
- We need to protect houses from the danger of flooding
- Property should be protected
- Defence can be more economical, Holland can do it why not us?
- To stop Orford from flooding
- It is wrong to let land and property deteriorate
- There will be a loss of houses, arable land and river and coast amenity
- There will be a loss of land, housing and agriculture
- We need to spend money now for future benefits like housing and wildlife habitats

Loss of Walls *(LW)* reasons:

- We built defences after the 1953 floods and they have stood the test of time
- The sea walls have worked well. We need to maintain our existing defences.
- We don't need change, the defences have worked for a long time
- There needs to be no change in the defences, they are adequate and not as expensive as the EA make out
- The defences need to be improved and not so much money spent on consultants
- The land needs defending
- Hold the Line is the most cost effective option
- Flood defences are needed at Orford
- The river walls were always carefully maintained by the NRA

Loss of Farmland *(LF)* reasons:

- We do not need more salt marsh
- It depends on what habitats and farmland are affected
- There is no going back once managed realignment results
- There will be flood damage to the soil and agricultural land
- Land for farming needs protecting especially with high food price
- Retain farmland for necessary food production
- We need land for food production
- There will be a loss of houses, arable land and river and coast amenity
- There will be a loss of land housing and agriculture

Loss of Habitats *(LH)* reasons:

- It depends on what habitats and farmland are affected
- It is in the interests of the local population and environment
- We need to spend money now for future benefits like housing and wildlife habitats
- The loss of mudflats is a concern
- To retain footpaths and marshes which are more pleasant and useful than mud flats

Loss of Trust *(LT)* reasons:

- Forecasts and extrapolations are flawed and uncertain
- I am not convinced of sea level rise and we can afford to deal with surges
- We want no change and do not trust the choice of managed realignment

'Hold the Line' is thought to be the flood strategy preferred by most people (O'Riordan and Ward 1997, Thomas 2011). The number of responses in this survey indicates that this is the case. Not all the respondents gave a reason for their choice of Hold the Line. The majority, who gave reasons, highlighted economic considerations and concern for the loss of property or farmland. It was partially economic reasons that contributed to the failure to implement the 2004 Environment Agency Strategy in the Orford area. The first Strategy had concentrated on hydrodynamic options (See Section 3.5.2).

Loss of habitat only featured on its own in one of the reasons, the other reasons stated included it as part of concerns for farmland and people. There has been a view that habitats for birds and animals are more important than people (Barker 2005), but this survey does not support this. The results of Question 1, (shown in Table 5.2) of the questionnaire, also indicated a lack in importance of changes to nature reserves.

Reasons for Managed Realignment

A key was used to code statements for the 'Managed Realignment Strategy' and statements assembled under the headings of:-

F Funding reasons
S Support nature reasons
O Other

Funding reasons:

- There is no money and with no political change we need to adjust.
- There is no money for Hold the Line which is preferred.
- Managed Realignment is least expensive, we need to be more pragmatic and have more salt marsh for environmental benefits.
- Managed Realignment is more feasible.
- Costs are high and Managed Realignment is the least bad choice.
- It is more economic.

Support nature reasons:

- We cannot stop the power of nature.
- We cannot be Canute.
- Change should be accepted, we cannot interfere with nature.
- It needs to be more natural, we need to accept change and have new habitats.
- Natural processes should be allowed.
- We need new habitats, and Orford needs to be protected.
- We need to be proactive not reactive and have more habitats.

Other

- Hold the Line is inadequate.

There were an equal number of responses to Managed Realignment for funding and 'nature' reasons. A number of people in the period of the survey in late 2008/early 2009 recognised the lack of money available for flood defence. It would be interesting to see if funding as an issue would be recognised more due to present fiscal difficulties. The other main supporting reason for Managed Realignment was that it was inevitable. This was one of the reasons also given for the no-intervention strategy stated below. It was also cited that more habitats were needed. People who support the Managed Realignment option were in favour of accommodating wildlife in a salt marsh habitat.

Reasons for No Active Intervention

- Let nature takes its course.
- Not waste money to protect subsidised farmland.

- There is a tax issue and we are not Canute.
- Due to a lack of national will.

Reasons for both Hold the Line and Managed Realignment

- Hold the Line is needed for the local community, Managed Realignment for habitats.
- We need a balanced approach to preserve life and protect valuable land.
- There is a need to improve defences that is more urgent in some areas than others, and Managed Realignment is cheaper.
- There is a need to improve wildlife habitats lost to farming.
- I prefer Hold the Line but there is no money so we must look at Managed Realignment.
- We need to maintain the line but with some Managed Realignment due to sea level rise.

The combined solutions of Hold the Line and Managed Realignment suggested by 6% showed that these respondents had preferences for flood management that is evident in the proposals in 2012 for some of the local flood management strategies in this area. The Estuary Planning Partnership for the Alde and Ore (OEPP) and Deben Estuary Partnerships (DEP) in Suffolk (referred to in Section 3.5.1) are in partnership with the Environment Agency that proposes different solutions for managing river walls along the length of the estuaries and rivers (see Section 3.5.2 and Figures 3.6 and 3.7). There therefore appears to be a developing preference for this more complex and shared combination of flood management in estuaries.

The results of the questionnaire questions relating to knowledge have provided further insights into local people's understanding of flood management issues. Adding the results of questionnaire answers will also recognise people with different levels of knowledge about flood management in the case study area. Results are presented in Section 5.2.3 along with those from the involvement questions discussed next.

5.2.2. Analysis of involvement Questions – 2, 10 and 11

(The Analysis of involvement Question 12 is found in the following Section 5.2.3)

Question 2
Do you belong to any groups of any kind in Orford or the surrounding area?

The answers to this question shown in Table 5.10, demonstrate a wide range in the number of groups that people belonged to. However, there was a concentration of

people that belonged to the Alde and Ore Association, a local pressure group who are greatly concerned with flood management, and also a group of people who directly use the river from the sailing club. The highest percentage of people however belonged to no group.

Table 5.10 Numbers and percentage belonging to group in Orford

Group	Number	Percentage
No Group	35	32
Alde and Ore Association	34	31
Orford Sailing Club	29	27
Church	10	9
Drama Group	10	9
Gardening Club	9	8
Badminton	7	6
National Trust	6	6
Friends of Orford Museum	5	5
Womens Institute	4	4
Book Club	4	4
Estuary Planning Partnership of the Alde and Ore	3	3
British Legion	3	3
National Heritage	2	3
Campaign to Protect Rural England	2	
Orford Business Association	2	2
Suffolk Preservation Society	2	2
Local Environmental Group	2	2
Aldeburgh Yacht Club	2	2
Orford Workers Educational Association	2	2
Sudbourne Womens Institute	2	2
Bowls	2	2

Other groups mentioned by just one individual were: Aldeburgh Lifeboat; Orford School; Suffolk Coastal Business Forum; Suffolk Coast and Heaths Partnership; Wildfowlers; Sudbourne PC; Yoga Group; East Suffolk IDB; CLA; NFU; Shooting Syndicate; RSPB; Tennis; Bird Surveys; Beekeeping; Allotment; Snape usher; Tideway Owners Association; Music Club; Orford PC; Recreation ground Chairman: Trustee NOTT; Local History Society; Walking Group.

The Alde and Ore Association is a pressure group that produces a frequent local newsletter with information about flood management strategies (Bingham 2007-2009). Their AGM has invited speakers from the Environment Agency and local and national politicians to talk about flood strategies and other plans that affect flood management in the area. Membership of this group could explain some of the higher levels of knowledge evident in the survey. The group has recruitment drives and tries to encourage more members from younger age groups and villagers who are not generally involved in flood management. The views of the effectiveness of the Association were sought in later stages of the research and reported in Participation and Consultation Issues, Section 5.4.1.

A high number of respondents also belonged to Orford Sailing Club, who would have an interest in the river, which may have prompted them to answer the questionnaire. For the rest of the organisations people belonged to, except for the church, drama group and gardening club membership, there was a wide distribution of interests and groups.

There were a significant number of respondents (32%) that did not belong to any group. Analysis of the classification of respondents' Knowledge and Involvement is presented in Section 5.2.3 which includes the number of respondents in each category of Knowledge and Involvement that did not belong to any group (see Table 5.15).

Question 10
Have you heard of any of these plans or been to a meeting about them?

The answers to Question 10 in Table 5.11 show knowledge about plans that relate to coastal flood management, and whether they had attended any meetings that present these plans.

Table 5.11 Plans that have been heard of and/or meetings attended by questionnaire respondents.

	Heard of this plan		Been to a meeting	
	YES	**NO**	**YES**	**NO**
Shoreline Management Plan. SMP2	35 (37%)	59 (63%)	13 (19%)	55 (81%)
Land Use Plan from Suffolk Coastal District Council	18 (20%)	71 (80%)	2 (4%)	57 (96%)
Environment Agency Management Strategy Plan	55 (62%)	34 (38%)	24 (31%)	53 (69%)
Environment Agency Coastal Management Plan	55 (62%)	34 (38%)	18 (25%)	54 (75%)
River Basin Management Plan	4 (5%)	76 (95%)	2 (4%)	55 (96%)
Coastal Habitats Management Plan (CHaMPs)	16 (19%)	70 (81%)	4 (7%)	56 (93%)

(Note: Percentages reflect the number of people who responded to question 10, not the number of people who answered questionnaires).

Table 5.11 shows that 62% of those who answered Question 10 had heard of the Environment Agency Flood Strategy Plans for the estuary and coast. Equally however, a similar but higher percentage of 69-75%, had not attended any meetings. 37% had heard of the Shoreline Management Plan, with many fewer people being aware of Land Use Plans and Coastal Habitat Management Plans. Very few people had heard of River Basin Management Plans. These specialist plans are not widely available but were of interest and known about by a few people who worked on the local RSPB bird reserve. Most people (25% and 31%), who had been to meetings, attended those organised by the Environment Agency Estuary Strategies. This was notably specific flood strategy meetings arranged in 2005 and exhibition in 2006 by the Environment Agency in Orford village hall (known as the Town Hall). There would seem to be an involvement gap between those who knew about flood management plans and those who attended meetings about them. This gap in knowledge and involvement through action in attending meetings or other types of engagements is an issue that this research is investigating. Questions 11 and 12 sought to find out what sort of meetings had been attended or respondents would consider attending. The results are shown in Figures 5.1 and 5.2 and Tables 12 and 13.

Question 11
Have you attended any local meetings about flood management?

Table 5.12 Number in each age group that attended flood management meetings
(PC = Parish Council and CJ = Citizens Jury)

Age group	Exhibition	Public meeting	Stakeholder meeting	Surgery	Work shop	PC	Experts	CJ	None
≤ 20	0	1	0	2	0	1	0	0	8
21-40	3	1	1	1	1	1	1	0	12
41-60	6	1	2	0	1	2	0	0	13
≥ 61	30	24	10	0	4	10	4	2	21

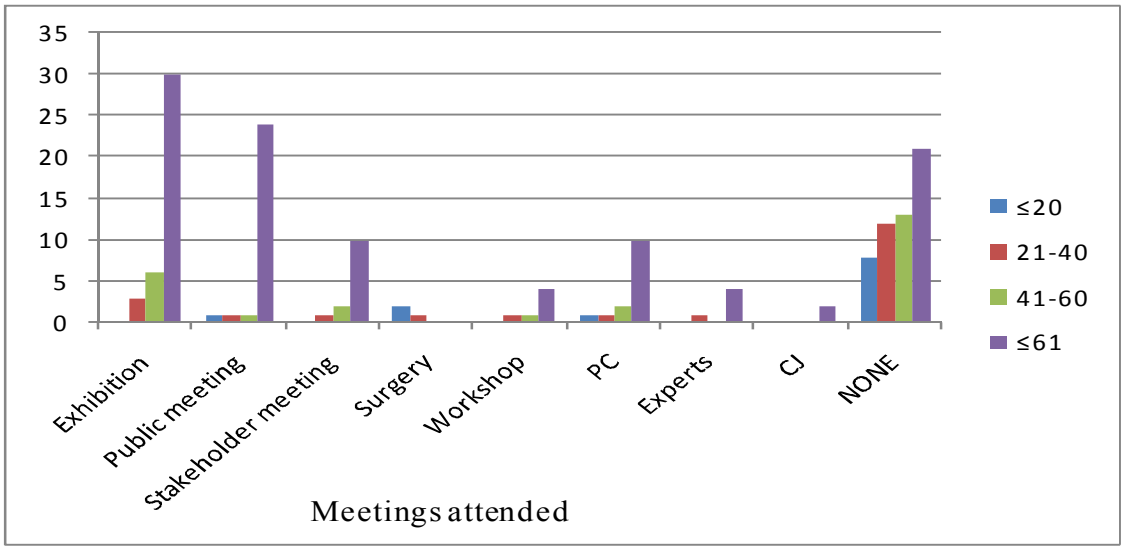


Figure 5.1 Flood management meetings that respondents said they attended

Figure 5.1 and Table 5.12 shows that meetings arranged specifically for flood management by the Environment Agency and Estuary Planning Partnership for the Alde and Ore, were the most attended. These were an exhibition, public meeting and stakeholder meetings. 64 out of 109 respondents (59%) said they attended one of these meetings. This is at odds with the answers to Question 10, seen in Table 5.11. It could be explained by the fact that people attending meetings knew they were organised by the Environment Agency, but did not relate this to the plans the Agency was presenting. These meetings were the only ones that were planned about flood management at this time. Other meetings mentioned may not have been specifically for flood management or may have taken place outside those in the village. There were no surgeries, panel of experts, or citizen's jury meetings in the village. Further questioning needs to be undertaken to find why respondents chose these options. The responses however do show the more positive response from the older age group to the question of meeting attendance.

Question 11 What type of meeting would you consider attending?

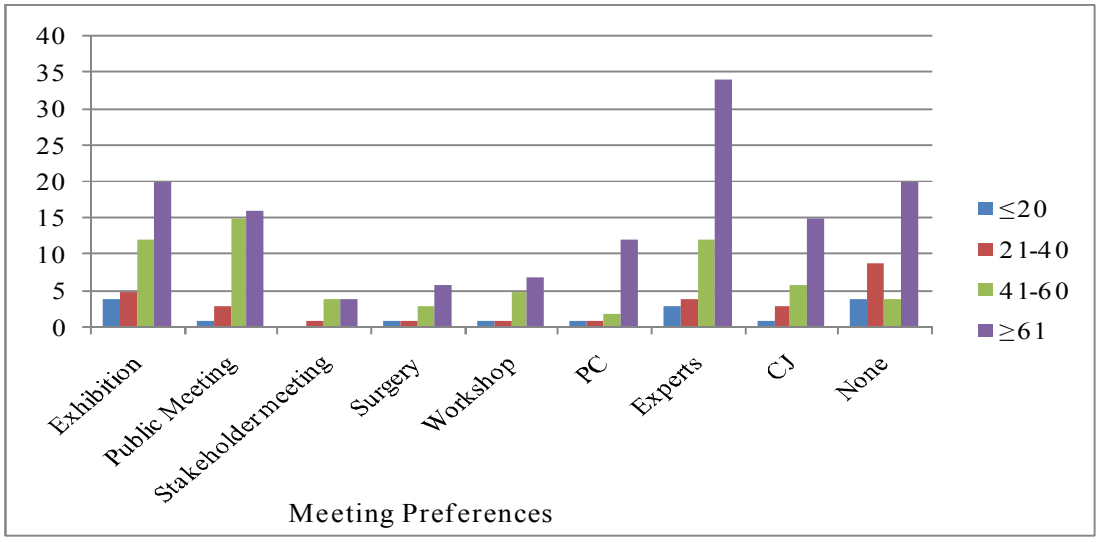


Figure 5.2 Flood management meetings respondents said they would prefer

Table 5.13 Number of times different age groups chose meetings they preferred (PC = Parish Council and CJ = Citizens Jury

Age group	Exhibition	Public meeting	Stakeholder meeting	Surgery	Work shop	PC	Experts	CJ	None
≤ 20	4	1	0	1	1	1	3	1	4
21-40	5	3	1	1	1	1	4	3	9
41-60	12	15	4	3	5	2	12	6	4
≥61	20	16	4	6	7	12	34	15	20

Figure 5.2 and Table 5.13 shows that the Environment Agency exhibition and public meeting were selected as meetings that respondents would consider attending. There were also preferences for use of the Parish Council, information gained from a panel of experts and increased participation through citizen juries. The most favoured meeting selected by the youngest ≤ 20 age group was for an exhibition and a panel of experts. This was also the case for all the age groups. It is questionable that respondents knew what a citizens jury was and if they would take part in one if they did. The purpose of citizen juries was not described to respondents. Older age groups also had a preference for public meetings and a panel of experts. An initial analysis

of preferences for different methods by respondents with different levels of involvement was made, as is to be found in Section 5.2.3. The question of preferences for different types of methods of engagement is also sought in the following phases of the research in the interviews and the workshop.

An evaluation is carried out at this stage of respondents' levels of knowledge and involvement into high and low categories. These categories will be referred to in analysis through the following sections of this chapter. How the categories of Knowledge and Involvement were devised is explained in the following Section.

5.2.3. Analysis of questionnaire results using Knowledge and Involvement categories.

Each participant's questionnaire score was tallied, and the mean of the distribution for knowledge scores was calculated. The mean for knowledge scores was 18.4 and one standard deviation from the mean was 5.2. High knowledge was therefore defined as scores of at least the mean +1 standard deviation, whereas low knowledge is less than the mean -1 standard deviation. Allowing for the fact that knowledge was scored using whole numbers, high knowledge was defined as a score of 23 or above, and for low knowledge, a score of 13 or below. Figure 5.3 shows the distribution of knowledge scores.

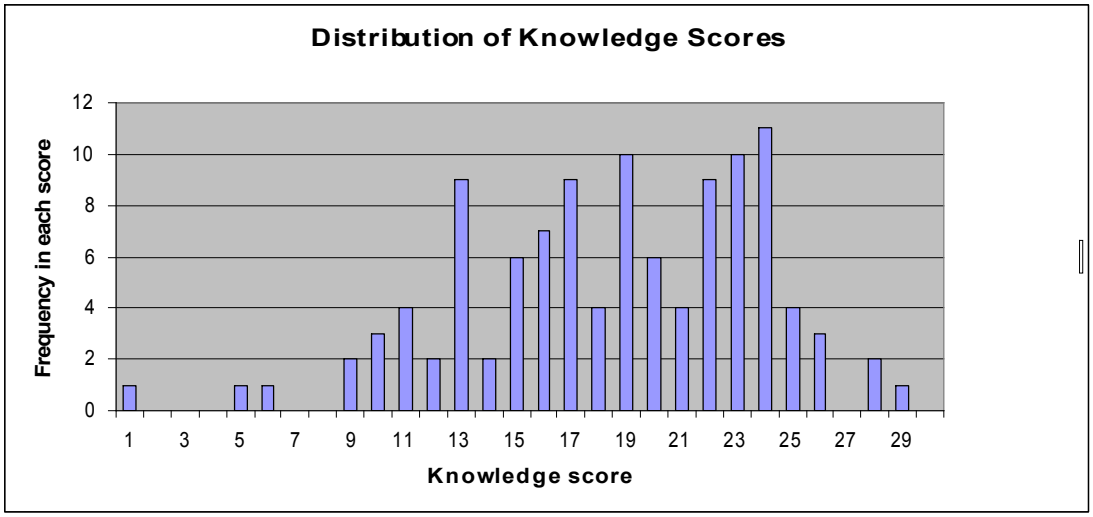


Figure 5.3 Distribution of knowledge scores.

The distribution shows a slight positive skew towards higher knowledge by respondents. Very low knowledge returns (1, 5 and 6), were from the 21-40 age group, where a village contact of that age was asked to obtain returns from friends of the same age. These returns were characterised by having few answers to questions.

The questionnaire also measured the level of involvement in flood management of the local population. Specifically the membership of groups concerned with flood management and attending meetings about flood management. The results of these answers are shown in Figure 5.4.

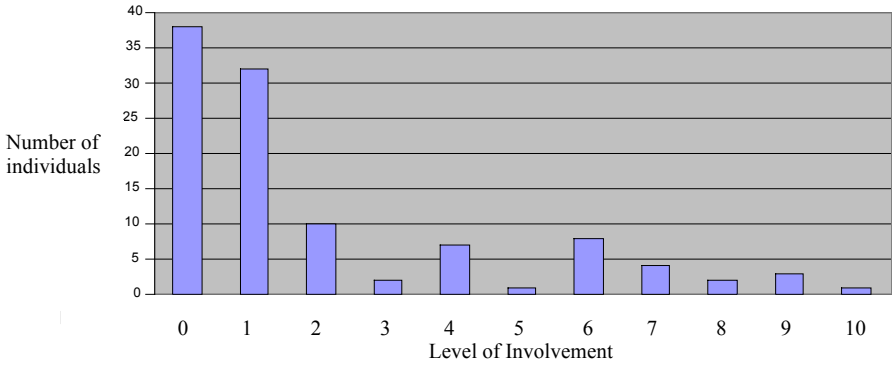


Figure 5.4 Distribution of involvement scores

Figure 5.4 shows a strong negative skew towards lower involvement. The y axis denotes the number of individuals in each score. A majority (74%) of respondents had scores of one or zero out of 10. The distribution of involvement scores were similarly calculated and classified. The average for the distribution was 2.0 with one standard deviation from the mean of 2.4. Higher levels of involvement were therefore considered as four or above and low levels at zero. When combining the knowledge and involvement scores it was possible to identify individuals with these categories of knowledge and involvement.

			Total in each group
Category 1	Low Knowledge and Low Involvement	(LL)	17
Category 2	Low Knowledge and High Involvement	(LH)	5
Category 3	High Knowledge and Low Involvement	(HL)	20
Category 4	High Knowledge and High Involvement	(HH)	19
Category 5	No Category (The middle range)	(NC)	48

Respondents were allotted categories from their questionnaire scores out of 30 for knowledge and 10 for involvement as described in Section 4.4. These categories were used to analyse answers to Question 12 that asks for willingness for further

involvement and Question 2 that reflected upon the relationship between the category and the number of groups to which respondents belonged.

Question 12 Is there any way in which you would like to become involved in flood planning?

Of respondents with high knowledge and involvement scores, two out of nineteen had the least numbers of negative (said no) responses (see Table 5.14). Respondents with low knowledge and involvement had eight out of nineteen negative responses; only one of these responded positively, with a comment about the Alde and Ore Association representing their views. Reasons given by the high knowledge and high involvement respondents were that they were already very involved in organizations where they felt they had expertise to offer, or wanted to contribute in some unspecified way. High knowledge and involvement respondents also stated that there were problems with second home ownership, the need for action and being listened to. Even within apparent supporters of involvement there are diverse views as to how they would like to be involved. Therefore further research was planned through the methodologies of interviewing, Q methodology and a workshop described in Sections 4.5 and 4.6 and 4.7. These further methods looked at any patterns in the differences, and similarities between individuals and groups to assist with finding out ways to improve participation. Further evidence in the positive answers to Question 12 from people with higher levels of involvement showed they gave more reasons for involvement and less negative responses or no response. The overall pattern of negative responses to Question 12 is shown in Table 5.14.

Table 5.14 Negative responses (said no) to Question 12 of the Questionnaire that asked if respondents would like to be more involved in flood planning (Not answering the question was not counted as a negative response)

Category of Knowledge (K) and Involvement (I)	Number of respondents in category	Number of negative (said no) responses in each category	Percentage negative (said no) responses
HH	19	2	10%
LH	5	0	0%
HL	20	3	15%
LL	17	8	47%
NC	48	16	33%

In Table 5.14 respondents from the low knowledge and low involvement category (LL) had more negative responses. With this group, more effort needs to be made to encourage them to engage and become involved. However, it is by reviewing the reasons of those people who are involved, that insights could be made to improve the participation of others in flood management. There were a high proportion of people in the LH and NC categories who made no response to this question. These people also need to have the reasons for their non-involvement investigated.

Another analysis of the responses for the meetings attended is used to verify the amount of involvement admitted and the type of meetings attended by the different categories of knowledge and involvement. Table 5.15 verifies that high knowledge and involvement people attended the highest variety of meetings as a percentage of their number and low involvement people attended the fewest. What is interesting and possibly expected is that the high knowledge and involvement people, those in the 'no category', and those with high involvement attended a wider variety of meetings. It is attention to the preferences for methods that will engage with low category involvement people that needs to be addressed to improve their participation. The exhibition, stakeholder and Parish Council (PC) meetings appear to be the most attended by all categories. Further reference to exhibition and PC meetings are found in the later stages of the research.

Table 5.15 Percentages of people in different categories of knowledge and involvement attending or not attending meetings

Category	Exhibition	Public Meeting	Stakeholder meeting	Surgery	Workshop	PC Meeting	Experts	None
HH (19)	74	79	53	5	26	42	16	5
HL (20)	45	0	5	0	0	0	0	50
LH (5)	100	80	40	0	20	20	60	0
LL (17)	6	0	6	0	0	6	0	82
NC (48)	29	29	4	2	4	8	2	58

(Note: The differences in a no response answer to Question 12 and this analysis, is due to not attending any meetings, and not an indication of not wanting to be involved).

A further analysis of meetings was carried out on Question 11 answers to see if there was any pattern to the type of meetings respondents in the different categories of knowledge and involvement would attend. The results of this preference for types of meetings, is shown in Table 5.16.

Table 5.16 Meetings respondents with different levels of knowledge and involvement said they would consider attending.

Meeting Type /Category of K and I	**LL (17)**	**HL (20)**	**LH (5)**	**HH (19)**	**NC (48)**
Exhibition	3	11	0	4	24
Public Meeting	4	15	0	4	15
Stakeholder Meeting	1	2	1	4	1
Surgery	2	1	1	4	2
Workshop	1	2	1	5	7
Parish Council	2	6	1	4	14
Panel of experts	3	13	1	5	20
Citizens Jury	2	2	1	8	14

As indicated by Table 5.13 the exhibition, panel of experts, public, parish council and citizen jury meetings stand out as meetings that especially older age groups would consider attending. This does not necessarily mean they have a preference for these meetings. This is for further investigation in the results of interviews, Q and the workshop. However from Table 5.16, there are initial indications that people with different levels of knowledge and involvement will have different ideas about participation. For the low level of knowledge and involvement responses, there are generally low numbers of people who would consider attending any meetings, indeed eleven of the seventeen people in this category did not respond to the question. However the low involvement and high knowledge respondents did have a more positive response to the question and favoured the exhibition, public meeting and the panel of experts. This group of people would appear to like to be more involved with expert knowledge. The high knowledge and high involvement respondents would like to have more involvement with citizen juries, and perhaps

this is an indication they would like more influence over decisions and therefore more influence in the governance of flood management (see Section 1.2.1 for a discussion of governance). A large proportion of respondents to the questionnaire (44%), who were not categorised (NC), followed the same pattern of attending an exhibition, public meeting, panel of experts and citizen jury.

Other initial uses of the categories identified from the questionnaire for the levels of knowledge and involvement of respondents were used to analyse membership of the Alde and Ore Association. This analysis showed that: 74% of the people within the High Knowledge and High Involvement respondents belonged to the Association; 80% of the people within the High Knowledge and Low involvement respondents belonged to the Association; 80% of the people within the Low Knowledge and High Involvement respondents belonged to the Association; 79% of people in the no category (NC) respondents belonged to the Association and 12% of the people within the Low Knowledge and Low Involvement respondents belonged to the Association. It would seem that belonging to the Alde and Ore Association was a characteristic of the sample in all but those with low Knowledge and Involvement. Reasons for this distribution were sought in interviews and Q. Further analysis was carried out between those respondents who had different categories of Knowledge and Involvement and did not belong to any group. The results are shown in Table 5.17.

Table 5.17 Numbers and percentages in each category not belonging to a group associated with flood management

Category	Number	Out of	Percentage
High Knowledge High Involvement	0	19	0
High Knowledge Low Involvement	5	20	25
Low Knowledge High Involvement	1	5	20
Low Knowledge Low Involvement	10	17	59
No Category	19	48	40

This distribution in Table 5.17 shows that all respondents in the High Knowledge and Involvement category belonged to a group and many more of the low Knowledge and Involvement respondents did not. From the pattern shown in Table 5.18, the High Knowledge or High Involvement category had the highest number of groups per person. This was followed by the Low Knowledge but High Involvement people. The pattern of groups per person verifies patterns of involvement through the categories.

Table 5.18 Category of Knowledge and Involvement related to number of groups belonged to

Category	0 group	1 group	2 groups	3+ groups	Total groups	Total people	Normalised groups per person
HH	0	3	3	13	48	19	2.5
HL	5	6	5	4	28	20	1.4
LH	1	1	1	3	12	5	2.1
LL	10	4	4	0	12	17	0.7
NC	19	14	5	10	54	48	1.1

The idea of a link between the number of organisations that people belonged to and a person who is more likely to be generally involved was proposed as an idea to be tested and refers to Ajzen's (1991) 'Theory of Planned Behaviour' (discussed in Section 3.6). An analysis was therefore made to see how many groups were joined for each category of Knowledge and Involvement. The results of this analysis were that the distribution within the different categories for those who did belong to groups in Table 5.18, shows a more complex pattern than those who did not belong to any group. Those with High Knowledge and Involvement had the most people in the '3+ groups' category. Therefore there could be some evidence that higher knowledge means a tendency to more involvement in general. Higher knowledge does seem to mean joining more groups and Low Knowledge means belonging to fewer groups but there could be other reasons that are not explained by degrees of knowledge. The next, interview stage explores some of the reasons for this distribution and seeks reasons for problems with involvement.

To investigate any relationship between knowledge and involvement in the results of this research a calculation was carried out to see if there was a statistical relationship between knowledge and involvement. Figure 5.5 shows the graphical spread of scores.

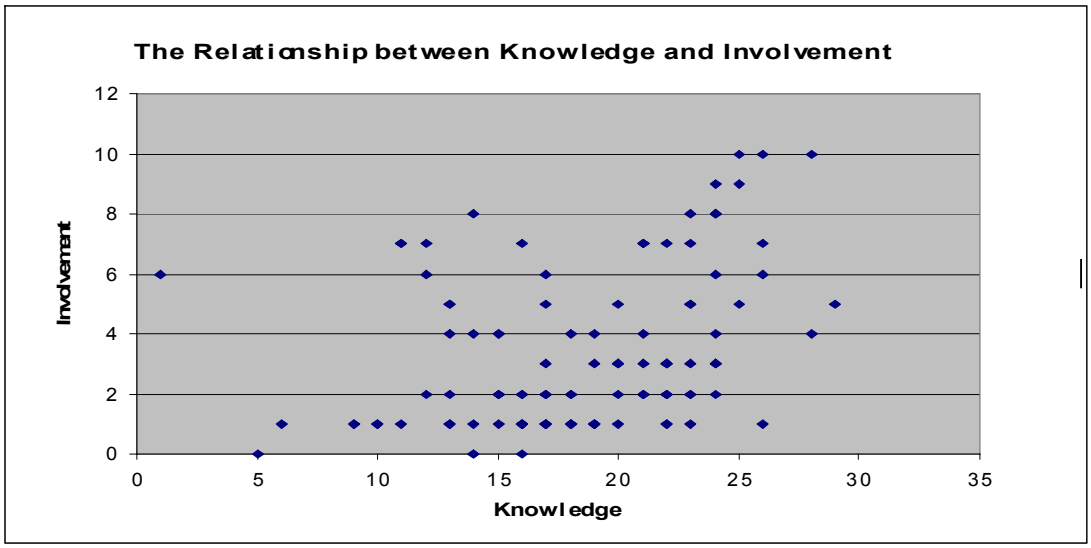


Figure 5.5 Scatter graph to show the relationship between Knowledge and Involvement scores

Figure 5.5 shows the graphical relationship between Knowledge and Involvement scores A Spearman's correlation co-efficient was calculated using the knowledge and involvement scores on an Excel spreadsheet. The result was a correlation co-efficient of 0.37, where 0 is a random result and 1 is a perfect straight line fit of a strong relationship. The result of 0.37 with a statistical significance level of 0.0005 is therefore a very weak relationship. The low correlation meant that in this instance involvement cannot be explained by knowledge alone and further research was needed. This lack of relationship between knowledge and behaviour was also found in Ajzen's 'Theory of Planned Behaviour' (TPB). He proposed that knowledge, or correct factual information, plays no direct role in the TPB. Although information in the form of behaviour-relevant beliefs is a central component of the theory, whether information is correct or incorrect is immaterial. What matters is whether the information works for or against performance of the behavior (Ajzen 1991). Therefore knowledge or the possession of information may not cause involvement behaviour but it may have an effect on it. The grouping of people into degrees of

present knowledge and involvement was felt to be a valid way to investigate other reasons for participation or non participation in flood management for people with these characteristics.

5.3 Analysis and results of Q methodology (Q)

40 statements were composed from post questionnaire interviews (see Section 4.6.1), and taken for use in the application of Q methodology (see Table 5.23). When the results of the Q sorts were analysed, using the computer programme PQ Method, a decision had to be made about the number of Factors to use. The choice of Factors is important because it determines the ability to recognise groups of people with different perspectives. The choice in this example was made between eight, five or four Factors that were generated as the output from the PQ computer analysis. There is an element of subjectivity in how many Factor arrays to use, and their interpreted meanings (Kitzinger 1999 p.269). One example of Q research reported that from PQ analysis 'five factors, or clusters of common subjective outlook on an issue, *emerged* from the 37 sorts' (Robbins and Krueger, 2000 p. 639). Other research reported rotating of Factors to establish a higher correlation between people in Factors (Eden et al. 2005 p. 418). Rotation of Q output was attempted in this research but no gain in groupings of Factor statements identified justified using this technique. The selection of which Factor selection was made in this research is explained below.

It was calculated that by using just four Factors provided few defining sorts. Eight Factors, as shown in Figure 5.18, were analysed but it proved difficult to differentiate characteristics as there were too many overlapping statements within each Factor. For example Statement 29 appeared across four Factors and Statement 26 across five Factors. This shows a consensus between Factors but it does not differentiate between Factors, therefore a five Factor analysis was selected for analysis. Table 5.19 shows the overlapping statements of three or more Factors for an eight Factor analysis. There were also fourteen other instances with two overlapping statements and twelve statements that did not overlap, which were Statements 2, -3, -4, -10, -19, -20, -25, -28, 32, -35, -37 and 39. The – (minus) numbers denote statements that were selected in the sort matrix as 'Least like my views' (see Figure 4.4)

Table 5.19 Eight factor selection showing overlaps in statements with three or more statements in the each factor

Statement → Factor ↓						
F1	3			29	31	
F2		12	26	29		32
F3		12		29		
F4	3	12				
F5			26	29		
F6			26			
F7	3		26		31	32
F8			26		31	32

Other overlapping statements with two overlaps were -1, -6, 7, -8, -10, -11, -13, -27, 34 and 35.

Non overlapping statements were: -3, -4, 8, -10, 19, 20, 25, -28, -32, -35, 36 and 39 with a significant Z score of over one (for explanation of Z scores see Section 5.3.1).

(Note: all the overlapping statements with 3 or more overlaps were positive that is 'like my views' responses. Those statements with one or two overlaps had more negative 'least like my views' responses in the eight factor selection).

Table 5.20 Five Factors showing total number of overlapping statements

Statement → Factor ↓							
F1	-6	-8		13	26	35	-38
F2			12		26	35	
F3	-6	-8		13		35	
F4			12				-38
F5		-8					

These were the only overlapping statements.

Non overlapping statements with a significant Z score over one were:

2, 3, -3, -7, -11, 14, 16, -17, -18, 21, 22, 25, -26, 27, 28, 29, 31, 32, -32, -33, -34, -37, 38 and 39.

From Tables 5.19 and 5.20 it can be seen there was more overlap in the Eight Factor statement analysis. In the Five Factor analysis shown in Table 5.20 there are fewer overlapping statements with fewer Factors and therefore more differentiation

between Factors. However there are also some overlaps with statements that could also be significant when comparing Factors. The results from the Five Factor Q analysis will provide data from loadings of individuals on Factors that allows a classification of the perspectives of people who will load on certain groups of statements. The selection of people into the different factors by PQ Method is shown in Table 5.21.

To enable identification of individuals as members of Factor groups, the first two numbers indicate the individual Q sort and the next two letters in each case indicates the different levels of knowledge and involvement that is HH, HL, LL LH and NC (see Section 5.2.3 for definitions). Defining sorts are significant at > 0.42 which is the standard error calculated for the use of 39 participants using the formula:

$$SE = 2.58 \times 1/\sqrt{39} = 2.58/6.2 = 2.58 \times 0.1613 = 0.42$$

(See Section 4.6.5 for further reference to the formula).

People were therefore identified as 'defining sorts' by their loadings on Five Factors using PQ Method. The participants who had a score above 0.42 had defining sorts shown by an 'X' below. Thirty two out of the thirty nine people who carried out the Q sort had defined sorts. Participants with significant loadings on two different Factors, of which there was one (respondent 22), were excluded from the analysis, along with six participants (respondents 12, 16, 17, 19, 23 and 29), who did not load on any Factor.

Table 5.21 Factor matrix with an X indicating defining sorts

Q Sort	1	2	3	4	5
1LL	-0.198	-0.4723X	0.1108	0.3374	0.0248
2NC	-0.0415	-0.1830	0.5912X	0.2962	-0.2151
3HH	0.6893X	-0.1032	0.2069	0.0338	-0.0396
4HH	0.0567	0.2891	0.1578	0.0551	0.5597X
5LH	-0.1763	0.7097X	-0.1873	0.0569	0.2951
6HL	0.5921X	0.1517	0.2123	0.0621	0.2305
7HL	0.5097X	0.0356	-0.0204.	0.3938	0.3010
8NC	0.5.53X	0.0488	0.3497	-0.1284	-0.0226
9NC	-0.0377	0.3059	0.6080X	-0.0112	0.0911
10NC	0.2988	0.7587X	0.0680	0.0716	-0.0328
11HL	0.6203X	-0.0643	-0.0620	-0.0377	0.0452
12LL	-0.0880	0.0890	0.1364	0.4117	-0.0948
13LH	0.1423	-0.0679	-0.1475	0.4622X	0.0867
14HL	0.4119	0.4714	0.4306	0.1322	-0.0994
15HH	0.4845X	0.0151	0.3390	-0.0837	0.1494
16HH	0.1951	0.3673	0.0531	0.2851	0.1215
17LH	0.3114	0.2903	0.3118	0.0552	0.0330
18HH	0.2040	0.6775X	-0.0115	-0.0298	-0.1411
19NC	0.0217	0.4092	0.1772	-0.0940	-0.0452
20NC	0.3290	0.0197	0.4128	-0.3307	0.4619X
21HL	0.0199	-0.1006	0.4726X	0.2513	-0.2802
22NC	0.1167	0.4645	0.0761	0.4009	-.5120
23HL	0.4038	0.3494	-0.0565	-0.2235	0.4163
24LL	0.3688	0.0467	-0.1014	0.6248X	-0.0853
25HH	0.2456	0.1488	0.1653	0.1283	0.5190X
26HH	0.6052X	0.1675	-0.1734	-0.0150	-0.1453
27HH	-0.2513	0.6704X	-0.0094	-0.0583	-0.0329
28HH	0.6057X	0.2466	0.1984	0.1798	0.1803
29LL	0.1283	-0.0245	-0.0169	0.3611	0.3665
30NC	-0.3037	0.3367	0.3617	0.4539X	-0.0355
31LH	0.1114	0.2506	0.4765X	0.1602	0.1571
32LL	0.1175	-0.0459	0.0562	0.6126X	0.0237
33HH	0.0659	0.5753X	0.1588	0.2790	-0.0144
34NC	-0.3665	0.0476	0.0754	0.479X	0.1397
35NC	0.0935	0.1093	0.0775	-0.0860	-0.7185X
36HH	0.6442X	0.1835	0.1967	0.1220	0.0215
37NC	0.3405	0.0846	0.5549X	0.1229	-0.0085
38HH	0.1607	0.1737	0.1543	-0.1452	0.5436X
39HL	-0.0545	-0.1391	0.5005X	-0.0874	0.2651

Using information from Table 5.21, Table 5.22 was constructed to show the characteristics of the people with sorts defined by their statement selection in the five

Factors. To construct Table 5.21 loadings are in order of high to low scores of participants in the different Factors.

In Table 5.22, the first two numbers (01-39) are the participant's number in returning the sort; the next two letters, HH, HL, LL, LH or NC, are the category of knowledge and involvement of the participant; the next letter represents the gender of the participants; the next number represents the age of the participant: ≤20 = 1; 21-40 = 2; 41-60; ≥61 = 4. The numbers beneath refers to the significance of the defining sort above 0.42.

For example the code: 03HHF4 means:

03	HH	F	4
Number in returned sort	High Level of Knowledge and Involvement	Female	61 or Over

Table 5.22 Defining sorts

Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
03HHF4 0.69	10NCF3 0.76	09NCM4 0.61	24LLF2 0.62	35NCM4 -0.72
36HHF4 0.64	05LHM4 0.71	02LLM1 0.59	32LLF1 0.61	04HHF4 -0.56
28HHM4 0.61	18HHM4 0.68	37NCM3 0.55	34NCF3 0.48	38HHM4 0.54
11HLM3 0.62	27HHM4 0.67	39HLM4 0.50	13LHF4 0.46	25HHM3 0.52
26HHF4 0.61	33HHF4 0.58	39HLM4 0.50	30NCF3 0.45	20NCM4 0.46
26HHF4 0.61	01LLM3 -0.47	31LHM4 0.47		
06HLF4 0.59		21HLM1 0.47		
07HLF4 0.51				
08NCM4 0.51				
15HHM4 0.48				

The respondents identified in Table 5.22 represent the people who are associated with the views in that Factor. Table 5.23 demonstrates one way that Q allocates importance to statements in different Factors. The statements selected from PQ

Method computer programme analysis as significant, are those identified as having Factor array scores 3 or 4, -3 or -4 and have been highlighted in red.

Table 5.23 Defining statements attributable to different Factor array scores

No.	Statement	1	2	3	4	5
1	I am busy doing other things.	-3	-4	1	-1	-2
2	I would join an organisation like the Alde and Ore Association to get involved.	2	1	0	-1	-4
3	If it was a practical situation and flooding was actually happening, then yes I would get involved.	1	-3	4	1	-2
4	Meetings are boring.	-1	-2	-2	0	1
5	There are many surveys and suggestions but nothing actually happens.	-2	0	0	0	-1
6	I think my opinion will not make a difference.	-3	0	-3	0	3
7	I get involved because I have an interest in farming, sailing or protecting wildlife.	3	2	1	1	-3
8	I don't think flooding will happen in my lifetime.	-4	-2	-3	-3	-3
9	I would rather leave it to people who know more about it and are more aware of the river.	-2	2	-1	-1	-1
10	The way for people in Orford to get involved is to phone up or write to our District Councillor.	1	0	-2	-2	1
11	Finding out by word of mouth, like the village shop is terribly important to us.	-1	-1	-3	0	2
12	People are cynical of politicians. I think they have a hidden agenda.	-1	3	3	4	0
13	I think consultation works, and decisions are accepted if there is real honesty, and they tell you how it is.	4	0	3	1	2
14	I would listen to someone normal, someone who uses the river the same as I do.	0	1	0	3	0
15	The Environment Agency thinks that consulting people is important, they now do things differently, and consultation is better.	2	-1	1	0	1
16	What we need is an organisation that will represent us when we don't agree with what is going on.	0	2	-1	2	-2
17	People do not want the Environment Agency knocking on their doors to tell them about flood management.	-1	-2	-2	2	-2
18	If they have made up their mind before consultation, there is no real choice, and it is a waste of time.	-2	1	1	0	-4
19	'Drop ins' in the Town Hall to ask individual questions are better than meetings.	-1	0	1	0	0
20	Local people involved in flood management should be invited to debriefings.	2	1	2	3	2
21	People are keen to get involved at the beginning but there is a lot of cynicism now because nothing has happened.	0	-1	2	3	0
22	People ought to write and protest more.	1	1	1	2	3

No.	Statement	1	2	3	4	5
23	When it comes to community things people have always helped each other and we don't need to have it written down.	-2	-3	-2	0	0
24	The Environment Agency has not got the expertise of putting the message across to ordinary people.	0	-1	-1	-2	-1
25	I'm told there are many good people in the Environment Agency. They are well trained, want to do a good job, and find the money.	1	-2	2	-2	4
26	The Environment Agency doesn't feel that the small number of people involved, are worth the billions that it is going to cost to save the coastline.	3	4	-1	-1	-3
27	Local Councils should be the principal agents for sea defences.	-2	3	-2	-2	1
28	We need to talk to local councillors more.	0	-3	-1	1	3
29	The Alde and Ore Association is an important pressure group.	2	3	0	2	-2
30	I get information from noticing local things like the line down the side of the Town Hall after the 1953 flood.	0	-2	0	-3	-1
31	I get information about flood management from local people. I would listen to someone who has lived here all their lives, and worked on the river.	2	2	0	3	0
32	Central Government is facing severe cash problems. East Suffolk does not return Labour MPs, so they will not spend money here.	-3	4	2	-4	4
33	I think some of the exhibition was difficult to take on board because it was too technical.	-0	-1	-4	-1	1
34	People do not believe in sea level rise and do not accept it is doing damage.	-1	1	-4	1	0
35	The Alde and Ore Association informs us of what is going on in flood management	4	2	3	-2	0
36	It is difficult to trust people if they do not admit there is uncertainty in what they say.	1	0	1	1	1
37	I would trust the Environment Agency not to tell lies.	1	-4	1	-2	2
38	Scientists make a great fuss about global warming because they want extra funding for their research, so they make it sound worse than it is.	-4	0	4	-4	-1
39	Information about flood management should be less complicated and intimidating, easy to read, and people should be comfortable to ask questions.	3	0	0	-3	2
40	I would get information from the internet.	0	-1	0	2	-1

From the statements above that are denoted 4, 3, -4 and -3, statements were sorted into those that were representative of the views of different factors. These Factor groupings where then analysed to review what different groups of people who selected the statements thought were most like or least like their views.

5.3.1 Results and analysis of statement distribution through the Factors

In the statistical computer analysis of Q statements Z scores are allocated (a Z score above one was taken as significant) and appear attributed to the individual statement in the bottom right corner of the Factor boxes in Table 5.24. The Z scores reflect the degree of significance of each statement from the PQ Method analysis of the number of times statements were selected in the five different Factors. Statements were significant because of their higher factor array scores from Table 5.23 above and Z scores that were above one.

Table 5.24 Statements that reflect the views of Factor 1
A Knowledgeable Perspective

Statements most like my views	Statements least like my views
13. I think consultation works and decisions accepted if there is real honesty, and they tell you how it is. 1.4	38. Scientists make a fuss about global warming because they want extra funding for their research, so they make it sound worse than it is. - 2.8
35. The Alde and Ore Association informs us of what is going on in flood management. 1.4	8. I don't think flooding will happen in my lifetime. -1.9
7. I am involved because I have an interest in farming, sailing and protecting wildlife. 1.3	6. I think my opinion will not make a difference. -1.4
39. Information about flood management should be less complicated and intimidating, easy to read, and people should be comfortable to ask questions. 1.3	1. I am busy doing other things. -1.12

Most of the people who selected the statements shown in Table 5.24 and loaded on Factor 1 were in the High Knowledge category, except one who was classified as NC (See Table 5.22). All people who loaded on this Factor were in the older age groups. Their views could be said to be those expressed by people who represent some people with high knowledge, but mixed, that is both high and low, involvement in flood management. The Factor was therefore considered as representing people from a Knowledgeable Perspective.

From the statements selected, honesty in the process of consultation, personal involvement, having time and not lacking in confidence were most like their views. They appeared to think flooding might be more likely to occur, they believed in

scientists and the way information was presented was important to them. The main statements selected in Factor 1 therefore reflect a concern with attitudes to the process of consultation and participation that individuals can trust. This was shown by the apparent trust in scientists (Statement 38), and robust processes giving people confidence that their views could make a difference. The process therefore needed:

- honesty (Statement 13)
- confidence and commitment through interests to be involved (Statements 6, and 7)
- time and a motivating interest or concern (Statements 1, 7 and 8),

And a possible method preference for:

- well thought out and trusted information sources and the opportunity to feel comfortable about asking questions (Statements 35 and 39).

People who loaded on Factor 2 statements (see Table 5.25) had a mixture of levels of knowledge and involvement (see Table 5.22). Three people had high knowledge and involvement scores three had low knowledge, and one of these with high involvement. Levels of knowledge and involvement could therefore not be said to be a characteristic of a Factor 2. One of the main concerns in this selection was a lack of funding, both by central government and the Environment Agency. The issue of funding remains a key issue in the search for a solution to flood management strategies, especially with regard to the maintenance of sea defences and river walls (Allam 2011), and is also a recurring concern throughout the research.

Table 5.25 Statements that reflect the views of Factor 2
A Political Perspective

Statements most like my views	Statements least like my views
32. Central government is facing severe cash problems. East Suffolk does not return Labour MPs, so they will not spend money here. 2.2	1. I am busy doing other things. -1.7
26. The Environment Agency doesn't feel the small number of people involved, are worth the billions that it is going to cost to save the coastline. 1.8	37. I would trust the Environment Agency not to tell lies. -1.5
27. Local councils should be the principle agents for sea defences. 1.6	3. If it was a practical situation and flooding was actually happening, then yes I would get involved. -1.4
29. The Alde and Ore Association are an important pressure group 1.4	28. We need to talk to local councillors more. -1.1
	23. When it comes to community things people have always helped each other and we don't need to have it written down. -1.1

Table 5.25 shows a majority of the statements that constitute Factor 2 have references to political concerns. Further political references in this factor were to local councils and a local group, the Alde and Ore Association, which was referred to in this selection as a pressure group. Other statements about the Alde and Ore Association viewed it as an information source or an Association to join to get involved. The Association was therefore considered to have a potential political role in this Factor.

There were differences in how the role of local councils was perceived. Councils were needed but there were implied reservations about councillors. It was felt that councils should be a main agent for sea defence decisions, due to their role in leading Shoreline Management Plans (see Section 3.4.4). Choice of statements with political issues such as funding, a pressure group and councils made this view have a political perspective. The main statements selected for Factor 2 reflected an apparent preference for not leaving situations informal (reflected in Statement 23). There was also a view that they would not necessarily get involved in practical flood response (Statement 3) and they displayed an apparent lack of trust in the Environment Agency (Statement 37).

The process needed:

- national funding issues to be addressed (Statement 32 and 26)

- solutions to possible problems with local politics (Statement 27, 28)
- alternative ways for personal involvement (1, 23)
- an improvement in trust (Statement 37)
- a pressure group, such as the Alde and Ore Association, to represent their views (Statement 29).

People who loaded on Factor 2 statements demonstrated a possible method preference for more 'formal' channels for involvement, for example their references to local councils and councillors. Formal channels are explained in more detail in Section 5.5.5.

Results of statements selected by people who loaded on Factor 3 are shown in Table 5.26. There are similarities between this Factor and Factor 1. People in this Factor also felt there should be honesty in the process of consultation in flood management, and that information is obtained from the Alde and Ore Association. Factor 3 people also selected statements about their opinions possibly making a difference, and had a perception of flood risk, which were the same as Factor 1 'least like my views' statement choices from Q sorts (see also Statements 35, 6, 8, Table 5.23).

Table 5.26 Statements that reflect the views of Factor 3
A Sceptical and Pragmatic Perspective

Statements most like my views	Statements least like my views
3. If it was a practical situation and flooding was actually happening, then yes I would get involved. 2.1	33. I think some of the exhibition was difficult to take on board because it was technical. -2.07
38. Scientists make a fuss about global warming because they want funding for their research, so they make it sound worse than it is. 2.1	34. People do not believe in sea level rise and don't accept we are doing damage. -1.6
13. I think consultation works and decisions are accepted if there is real honesty and they tell you how it is. 1.3	6. I think my opinion will not make a difference. -1.5
35. The Alde and Ore Association inform us of what is going on in flood management. 1.3	8. I don't think flooding will happen in my lifetime. -1.5
12. People are cynical of politicians. I think they have a hidden agenda. 1.0	11. Finding out by word of mouth, like the village shop is terribly important to us. -1.4

Of the seven participants in the Q sort who loaded on Factor 3 statements only one person had High Involvement. Three people had high knowledge, two Low

Knowledge and two people had scores in the No Category (NC) (see Table 5.22). Knowledge therefore did not seem to be a significant reason for loading on this factor but a low level of involvement may. All of the participants who loaded on this Factor were male. People who loaded on this factor appeared to need:

- increased trust in scientists and politicians (Statements 38 and 12)
- honesty in deliberations (Statement 13)
- to be informed by an organisation (Statement 33) and use technical information (Statement 35)
- opportunities are available to respond in a practical way (Statement 3).

Factor 3 characteristics are possibly a preference for an improvement in ways of information provision about flooding, for example getting information from an organisation like the Alde and Ore Association, and possibly preferring more scientific and technical data. The Factor displayed a cynical view in Statements 38 and 12 and some practical preference in Statements 3 and 33. The factor was therefore thought to represent a sceptical and pragmatic perspective.

Factor 4 has more statements selected that concerned local sources than the other factors. (See Statements 31, 14, 20, 30, Table 5.27). There appears to be a preference for getting information locally and follow up for local people in debriefings. However, not all local information sources are favoured as the choice of Statement 30 illustrates. Perhaps this shows a preference for information gained through speech and not artefact. Sceptical views reflect not trusting scientists and cynicism of both politicians and the process of involvement. The participants in Factor 4 also thought that there may be a risk from flooding (Statement 8).

Table 5.27 Statements that reflect the views of Factor 4
A Sceptical and Locally Attuned Perspective

Statements most like my views	Statements least like my views
31. I get information about flood management from local people. 1.7	38. Scientists make a fuss about global warming because they want extra funding for their research, so they make it sound worse than it is. -2.2
14. I would listen to someone normal, someone who used the river the same as I do. 1.7	32. Central government is facing severe cash problems. East Suffolk does not return Labour MPs, so they will not spend money here. -2.0
12. People are cynical of politicians. I think they have a hidden agenda. 1.7	39. Information about flood management should be less complicated and intimidating, easy to read, and people should be comfortable to ask questions.-1.4
21. People are keen to get involved at the beginning but there is a lot of cynicism now because nothing has happened. 1.4	8. I don't think flooding will happen in my lifetime. -1.1
20. Local people involved in flood management should be invited to debriefings. 1.1	30. I get information from noticing local things like the flood line on the side of the Town Hall after the 1953 flood. -1.1

From Table 5.22 the distribution of knowledge and involvement in Factor 4 shows that there was a mixture of knowledge, but no High Knowledge in this Factor. Three people had Low Knowledge and two were not categorised and NC (see Section 4.4). There was also a mix of involvement with two low, two NC and one high. All the people who loaded on this factor perspective were female, and may be explained by a preference for getting information locally by this group.

The main statements of discourse selections for Factor 4 appear locally attuned and also displayed a cynicism about the process. The factor was therefore named the sceptical and locally attuned perspective. The people who chose the statements in this factor may need a process that provides opportunities for:

- information from local people (Statements 31, 14, 20 and 30)
- resolution of issues (delays in the process, Statement 21) and ways to make people less cynical of politicians (Statement 12)
- recognition of flood risk (Statement 8)
- an understanding of science, funding and information issues (Statements 32, 38, and 39).

The Factor 5 selection of statements also has a possible method preference for obtaining information about flooding and flood management from local people, but it was a more complex Factor to understand and name because of contrasts between people who chose opposing statements. The main characteristic of Factor 5 is that people had both negative and positive responses to statements selected within the Factor. The two opposing choice of statements are described as either (E), which equates to those 'engaged' and are positive about statements, or (D) which represents 'disengaged' and those who have opposing, sometimes negative views. The distribution of (E) and (D) statements are shown in Table 5.28.

Table 5.28 Statements that reflect the views of Factor 5
The Engaged and Disengaged Perspective

Statements most like my point of view	Statements least like my point of view
32. Central Government is facing severe cash problems. East Suffolk does not return Labour MPs, so they will not spend money here (E). 1.6	18. If they have made up their mind before consultation, there is no real choice, and it is a waste of time (E). -1.9
25. I am told there are many good people in the Environment Agency. They are well trained, want to do a good job, and find the money (E). 1.4	2. I would join an organisation like the Alde and Ore to get involved (D). -1.7
22. People ought to write and protest more (E). 1.3	26.The Environment Agency doesn't feel that the small number of people involved are worth the billions that it is going to cost to save the coastline (D). -1.6
6. I think my opinion will not make a difference (D). 1.2	8. I don't think flooding will happen in my lifetime (D +E). -1.5
28. We need to talk to local councillors more (E). 1.2	7. I get involved because I have an interest in farming, sailing or wildlife protection (D) -1.4

Key: D = Engaged responses to statements
E = Disengaged responses to statements

With reference to Table 5.22, of the five people who loaded on Factor 5 three people had High Knowledge and Involvement and two were in the NC 'no category'. The same pattern of three high and two NC applied for levels of involvement. The three people who loaded positively were thought to have an 'engaged perspective'. Essentially the distribution of statements for engaged and disengaged perspectives were statements 32, about government funding, 25, about the Environment Agency

doing a good job, 28, talking to councillors more. In addition statement 8 people disagreed with flooding not happening in their lifetime and statement 22 about writing and protesting for the engaged perspective. Statement 18 also reflected an engaged view, in that consultation was not in their view a waste of time, or provided no real choice. This group of statements in the Factor could be said to represent a more 'organisational view'. One of the 'engaged perspective' participants was an Environment Agency officer and another was a Campaign for the Protection of Rural England (CPRE) representative. They had a more positive and pragmatic view, rather than a critical view, of the Environment Agency, which could explain this finding. A third person who loaded on statements as 'engaged' in this Factor was an RSPB retired warden. All three were therefore from organisations.

In contrast to an organisational view, Statement 6 reflects some lack of confidence in their opinion to make a difference, Statement 2, joining a pressure group organisation and Statement 7 reflecting a personal interest, form a more disengaged and 'independent view'. Some statements selected in this Factor also demonstrated an opposite view to other Factor statement sorts. There was a trust in the Environment Agency, not demonstrated in the other Factors. This was a difficult factor to analyse due to its dichotomous nature. It is evidence that opposing views exist and that different perspectives will need approaches that takes these differences into account.

5.3.2. Summary of the main conclusions from Q sorts

Table 5.29 shows that Q analysis highlights factor variations of people with differing levels of knowledge and involvement. This could aid identification of some of the barriers and motivations for possibilities to improve participation in flood management.

Table 5.29 Main characteristics identified for each of the five Factors.

Factor Perspective	Main Barriers	Motivations implied	Improvement possibilities	Knowledge Involvement	Gender	Age
Factor1. A Knowledgeable Perspective	Lack of honesty	Personal interest, confident and has time	Quality of information	High Knowledge Mixed Involvement	4 Males and 6 Females	41-60 and ≥61
Factor 2. A Politically Aware Perspective	Lack of funding and trust and not practical	Has time	Local Councils and pressure group used	Mixed Knowledge Mostly high Involvement	3 Males and 3 Females	41-60 ≥61
Factor 3. A Sceptical and Pragmatic Perspective	Lack of honesty and trust in scientists and politicians	A practical situation to respond to	Good, possibly technical, information	Mixed Knowledge more low Involvement	7 All Males	≤20 41-60 ≥61
Factor 4. A Sceptical and Locally Attuned Perspective	Cynicism of politicians. Nothing happens	Local sources of information. Aural possibly preferred	More debriefings (feedback)	Mostly Lower Knowledge and Involvement	5 All Females	All age groups
Factor 5. A Disengaged Perspective	Lack of support for EA. Decision has been already made	Interest in the river	Join the Alde and Ore Association	Mixed Knowledge and Involvement	1 Male 1Female	≥61
Factor 5. An Engaged Perspective	Lack of funding	Trust in the EA. Support for A and O Assoc.	People should write and protest more. Write to councillors	Mixed Knowledge and Involvement	3 Males	41-60 and ≥61

The HH people showed higher loadings for Factor 1, 2 and 5, the HL for 1 and 3, and the LL for 2, 3 and 4. NC respondents were found across all the Factors but with more in Factor 3, 4 and 5. People from the lower age groups were few in number but exclusively found in Factors 3 and 4, which classified them as either practically or locally attuned. The two young men were placed in Factor 3, and the young woman in Factor 4, which may indicate a gender and age preference between these Factors. It was also the case that all those who loaded on Factor 3 were male and all those on Factor 4 were female. There appeared to be a preference for Factor 3 selectors to favour practical involvement. A ratio of 3:1 males to females chose Statement 3 "If it was a practical situation and flooding was actually happening, then yes I would get

involved". In contrast those who loaded on Factor 4 had a preference for Statement 31 "I get information about flood management from local people." Both Factor 3 and Factor 4 had the highest number of statements about information, and the lower levels of knowledge and involvement in general. These preferences show that different perspectives exist therefore involvement strategies may need to be varied to accommodate these differences of views. Further research was carried out to investigate what the different strategies could be.

5.4 Analysis of post Q follow-up interviews

The post Q follow up interviews were used to stimulate discussion to help explain the selection of Q sort statements made by participants. This also explored the reasons why local people had personal issues, or saw general problems with involvement processes. An objective of the interviews was also to elicit ideas from the interviewees for improvements in participation for themselves and/or other villagers and identify method preferences and recommendations. Interviewees were selected as the highest scoring defined sorts in each of the five Factors. That is the three highest sorts in Factors 1, 2, 3 and 4, and additionally four interviewees from Factor 5, representing the two contrasting engaged and disengaged perspectives (see Table 4.14 and Table 5.28).

Analysis of interviews is described in two phases. The first phase was to review and analyse interview comments that included the reasons for respondents' Q statement selection. This is described in Section 5.4.1. This initial analysis helped gain a greater understanding of the issues. A second phase of analysis was to code the interviews and identify the most cited and important issues. This is explained in Section 5.4.2.

5.4.1. Initial analysis of post Q interviews

The statements presented to people for the Q sort were initially derived from issues of: attitudes to involvement issues; participation and consultation issues; governance issues and information issues. Transcripts of the follow up interviews to Q were therefore reviewed under these headings. This first review of the interviews reflected

on the statement selection by people identified as having different Factor perspectives.

Attitude Issues

Three respondents in the follow up interviews thought lack of trust was a significant barrier to involvement. These were additional to the ones found in Statements 13 about honesty in the process (significant in the views of Factor 1 and 3 respondents), and Statement 38 about trusting or not trusting scientists. In research by Johnston and Soulsby (2006), reliance on scientific knowledge alone to make decisions was not considered enough to get people involved. People who loaded on Factor 1 and 4 trusted scientists but those who loaded on Factor 3 appeared not to. Other emphasis on the lack of trust was found in two Factor 4 respondents (24LLF2 and 32LLF1), who were both young and female. They also selected statements that showed lack of trust for national politicians. Lack of trust in organisations or political institutions is a recognised problem with participation (Blake 1999; Petts 1999; Sturgis and Allum 2004; Lorenzoni et al. 2007).

The main source of conflict from interviews was that between permanent residents and second home owners. Both the second home-owners 36HHF4 and 37NCM3 thought they ought to keep a *"low profile"* so as not to upset permanent residents, or found many locals *"unwelcoming"*. A third respondent also thought there was a dislike for *"outsiders"* and two respondents in Factor 3 thought there were too many second homes.

A second area of community conflict, appeared to be between those that belonged to the Alde and Ore Association and 'others' as identified by a Factor 2 viewpoint (10NCF3). Two Factor 1 respondents (03HHF4) and (28HHM3), had stated problems with the composition of the Association and the perceived type of people it represented. Conflict resolution is important to enable successful participation of a wider proportion of a local population (Dalton 2006). Lack of trust in flood planners, and conflict resolution are difficult problems to solve by a few recommendations. It will take time for people who have lost trust to regain it; it has been said to be much easier to lose trust than to gain it (Sidaway 2005).

Respondents' perceptions from the follow up interviews for the risk of flooding followed a similar pattern to those found in the questionnaire and overall results of the Q sorts. The questionnaires identified 77% of people who thought there would more flooding. Q sorts also found flood risk was significant, most significant in Factor 1, but also in Factors 3, 4 and 5. The interviews overall had 62%, ten out of sixteen people, who disagreed with the viewpoint that flooding would not happen in their lifetime. The two youngest and some of the older respondents held an opposing view for different reasons. Two of the older respondents thought they would not have enough time left to see flooding and a third did not think it would cause him a problem. One could not see flooding as a *"danger"*. The two youngest respondents thought flooding was not high on their list of concerns and not a *"teenage interest"*, although one said he would want to help in an emergency. He was of the Pragmatic Perspective (Factor 3) and therefore more practically orientated.

Participation and Consultation Issues

How respondents viewed the ways they were represented in flood management issues, varied across the Factor groups. There was however a general awareness, if not support of, the Alde and Ore Association. There is evidence that this group may be unusual, as stated in a study by Harvatt et al (2010). The interests of local people, especially coastal communities in other flood risk areas, could be more under the remit of the local Coastal Partnership organisations, although these Partnerships vary widely in their nature and concerns (Fletcher 2002; Morgan and Whaley 2007). The local Suffolk Coast and Heaths Partnership, who have been discussed in Chapter 3 Section 3.5.1, is proactive in devising practical ways of getting local people involved. Many of the Coastal Partnerships are seen as having a role to promote the involvement of local people.

In this study, the Alde and Ore Association was mentioned as an information source, pressure group, or a group to join for representation in flood management issues, by all but the one LL respondent in Factor 2, one respondent in Factor 3, none in Factor 4 and the two respondents who were thought to be disengaged in Factor 5. Nine out of the sixteen respondents interviewed who selected Statements about the Alde and Ore Association were members of the Association. However, two of the Factor 1 respondents who belonged to the Association, were critical of it for being too *"posh"*

and *"exclusive"*. Five out of the fifteen thought they did a good job for them personally, but some others felt they did not represent some parts of the local population (Factor 1 03HHF4, 28HHM4 and Factor 2 10NCF3).

None of the respondents in Factor 4 belonged to the Association, or mentioned it as important in their interviews. They were also what could be considered as 'local people' having lived in the village for some time. They did not think of themselves as 'incomers' (that is, people with second homes or who had arrived to live in the village within the last 10 to 20 years). Attitudes to 'incomers' and 'locals' provided an issue to investigate, and was taken forward to the Workshop. One respondent in Factor 5 felt he could not be a member because he worked for the Environment Agency, but he was supportive of the Association and felt it was the *"local community flexing its voice"*. Second home owning Factor 1 (36HHF4) and Factor 3 (37NCM3) respondents favoured the Alde and Ore Association to represent their interests when not in residence in Orford.

Governance Issues

The other main source of representation in both the statements and follow up interviews were those provided by government structure, for example membership or use of the Parish Council or other local and national political institutions, like the District Council and local politicians. Two Factor 1 respondents were Parish Councillors. One in Factor 4 was a young woman who said she was motivated when asked to become a member of the Parish Council to represent the younger voice in the village. One respondent in Factor 2 was a politician. There were varying views about the effectiveness of Local Government. One view was that that the Parish Council was for *'local matters'*, for example planning for emergency flooding, and therefore needed representatives that should ideally '*care'* and were interested in local problems. A second view was that local councils were only interested in *"looking good"*, and were only *"out for themselves"* (Factor 3, 02LLM1).

There was generally some scepticism about political representation, especially from views of those in Factor 3 and 4; but criticism of government was general. There were negative views about local councils: being *"not active enough"* (Factor, 1 28HHM4); "*hide behind policy documents"* (Factor 2, 18HHM4); *"Councillors are*

amateur"' (Factor 3, 09NCM4); *"District councils only see the bigger picture and are not local enough"* (Factor 3, 37NCM3); trust in national government is lacking (Factor 4,24LLF2); no response from an MP that was written to (Factor 4, 32LLF1); the Parish Council is *"self interested"* (Factor 4, 34NCF3); Parish Councils are *"parochial"* and when given information *"they do not do anything with it"* (Factor 5, 38HHM4). There was general dissatisfaction with the way local people were represented by these formally constructed means of representation, however, all respondents had ideas of how to improve this (see ideas for methods in Table 5.36). Some also felt motivated to action, by being a parish councillor (three out of the sixteen). It would seem that local councils, especially Parish Councils could improve the way they are seen to represent people in flood management issues.

Experience with plans and strategies for flood management, produced at present by the Environment Agency, have proved a frustrating experience for some local people. Four HH respondents (03HHF4, 28HHM4, 38HHM4, 25HHM3), noted that there have been long delays in coming to decisions. One reason for the time taken has been recognised by the local District Council as difficulties with 'integrating plans' and including more local people in the decision making process for flood management. This problem is being reviewed by the new Integrated Coastal Zone Management (ICZM) officer at SCDC (Parker 2010). He is carrying out an exercise called 'The Alde and Ore Futures Project', part of which is to increase local public engagement with flood management in the Alde and Ore rivers and coast areas. This project is discussed more fully Section 3.5.3. The coastal and riparian part of the project, 'Managing the Coast', includes working with the Environment Agency to present solutions to flood management in the area. The project has been reported in the local press and the EA criticised heavily as to the information given about the project, and the way the process was carried out (Robinson 2011). The ICZM officer has also commented on the problem of wider inclusion in Governance (Parker 2011). Other problems with policies were described as 'people issues' where a local EA officer might be respected but EA policies were not (10NCF3). There was also reported a feeling that the village was managed by "*London People"* (Factor 2, 18HHM4). That is, people who had second homes or retired to the village from London.

Funding for policies was an issue stated both in the selection of Statements, 2, 26 and 32 in the Q sort, which were mostly selected by Factor 2, 'Political' perspective' respondents, and an 'Active' Engaged Factor 5 respondent, who thought due to the government spending review, money would not be available to fund current strategies when they are published in 2011, delayed from 2004 (38HHM4). To an extent the delays have occurred because the process of producing the policies, have become more complex. Policies now do not just refer to engineering solutions as they did in 2004, but have to also include economic and social considerations before consultation (Steen 2010).

Information Issues

It has been discussed (in Chapter 3), that a deficit of knowledge can mean a lack of understanding of flood management issues (Bodmer 1985; Buckeley 2000; Sturgis and Allum 2004) and a possible lack of engagement (Blake 1999; Miller 2001; Harvatt et al. 2010). It is recognised that there is some debate as to the efficacy of improving information provision and increasing knowledge in this way, facilitating more local involvement. There is also discussion as to whether increasing information will increase knowledge (Sturgis and Allum 2004; Dickson 2005). However, lack of knowledge was a clear cited reason for the lack of motivation to become involved by people in all of the five Factor groups. A Factor 1 respondent (28HHM4) thought a barrier to involvement was a '*lack of knowledge'*. Lack of knowledge was said to cause *'conflict'* and problems with involvement. This was due to some locals not liking personalities in the Alde and Ore Association, who are significant providers of information about flood management locally (Factor 2,10NCF3). People were also viewed as *"opinionated when they didn't know the facts"* (Factor 3, 02LLM1). People did not get involved because they *"lacked awareness of flood management*" (Factor 4, 24LLF2). Flood management is increasingly the responsibility of local District Councils; more knowledge of their increasing role could be expected because fundamentally people need access to relevant information (Singh 1995), but information about this is not widespread. One of the aims of the workshop in this research is to investigate preferences for involvement from a group of local people, which included how they would like to receive information.

It was felt by one of the respondents (Factor 5, 38HHM4), who is engaged in consultation processes to preserve the local landscape through representing the Suffolk Preservation Society (SPS), that "*It is difficult for the EA to simplify a complex solution to help people understand"*. There were suggestions by several respondents to improve both the nature and means to deliver information about strategies to local people. There were few references to how local people could input into decisions about policy formation. This proved a difficult idea for the new young Parish Councillor (Factor 4, 24LLF2), who was not sure how decisions could be affected, but thought it was useful for local people to have opportunities to express their views, and thought they did. This sometimes came out in 'alternative' ways. For example, a parody of the Village Voice Parish Council magazine found in the 'locals' pub takes the form of a publication produced by 'locals' called 'The Voice from the Top'. A group of local people write an alternative, amusing and sometimes sardonic view about a perception of what is going on in the village. The top of the village relates to the area of lower cost affordable community housing where most of these local people live, away from the potential flood area and the majority of attractive cottages and houses that are predominantly second homes.

The Environment Agency officer (Factor 5, 25HHM3) also thought that involvement with local people throughout the process, such as informing them of stages in data gathering, would mean that any decision made was "*not a surprise"*, implying that it would be more acceptable. To inform, consult and move towards co-acting in decisions about flood management, ways need to be devised and selected. As seen from the discussion in Section 1.3.1 there are many levels of ways to involve a local population that need to be considered. Mostly methods for participation have been chosen by the agencies responsible, in this case the Environment Agency and local District Council. This research has also reviewed the suggestions from members of the local population of Orford, as an outcome of post Q interviews (see Table 5.30 and explanation in Section 5.5.3).

5.4.2 Post Q interview coding

Post Q interviews were coded as described below.

Stage 1 Coding

Due to first phase analysis of post Q interviews the headings for coding emerged as: **Knowledge Issues** (Information issues from pre-Q interviews) because people were asked where they acquired their knowledge from and what was their preferred way to access information and thereby knowledge; **Representation Issues** (Governance Issues from pre-Q Interviews) because a common thread through the interviews was how local people could represent themselves or belong to other groups to represent them; **Policy Issues** (Governance Issues from the pre-Q Interviews) because there were comments on how plans and decisions were made; **Conflict and Trust Issues** (Attitude Issues from pre-Q Interviews) because more comments came from the interviews about the problem of conflicts in the community and an emphasis on trust issues; **Perception of Flood Risk Issues** (Attitude Issues from pre-Q Interviews) because this question was a common concern seen in many of the statements choices and during the interviews a specific question was asked about flood risk perception. The second issue from the pre-Q interviews was Consultation and Participation Issues. Finding preferences for consultation and participation was addressed by a specific question in the post-Q interviews which asked for individual **Method Preferences.** Method preferences can be different from those selected in the application of Q because post Q interviewees were specifically asked for their method preferences. Method preferences from interviews are shown in Figure 4.10 and reported in Section 5.4.3.

There were therefore three stages in analysis and coding for the post Q interviews: Stage 1 analysis to review statements under the headings from the post questionnaire interviews described in Section 5.4.1; Stage 2 coding to further differentiate statements into sub codes from interview transcripts (sub codes are listed in Table 5.30 and Appendix 5); and Stage 3 that refined coding to identify issues that included all the coded categories (see Table 5.31). The headings for Stage 2 sub coding are detailed in Table 5.30.

Table 5.30 Stage 2 – Sub Coding

Sub Code	Meaning
lk	lack of knowledge
h	honesty
ti	trust in information
pi	personal interest
a	appropriate information for the audience/receiver
r	risk recognised
t	have time (not too busy
c	confidence (opinion makes a difference /or not)
d	decision input
ap	apathy
co	community
f	funding
p	practical / or not
po	political
nd	nothing done and delays
sol	solutions (not methods)
ao	Alde and Ore association
lc	lacks competence

Stage 3 Coding

The eighteen sub codes emerged from a review of the interview transcripts following phase one analysis. Each sub code was checked for the Factor perspective that reflected the issue (see Appendix 5). From the Stage 2 coding it was possible to group like issues that reduced the number from 18 to 12 issues. The 12 issues are shown in Table 5.31. The third column of Table 5.31 shows how the sub codes were grouped.

Table 5.31 Issues with public participation in flood management identified from post Q interviews

Issue No.	Issue	Sub code or codes from which issues were derived
1	It is important to be given honest and trustworthy information	*h and ti*
2	Having an interest, practical or altruistic, is needed	*pi*
3	It is important to recognise flood risk and there should be raised awareness and knowledge of the problem	*r*
4	Accessible information to increase knowledge about flood management is needed	*lk, ti and a*
5	Time is needed to devote to involvement and ways to reduce apathy	*t and ap*
6	Confidence in personal opinions is needed to contribute to decisions	*c*
7	Feeling part of the community: knowing about the history of the flood problem in the area; accepting difference in background; and the value of local knowledge, all help the local community to 'flex its voice', get less contentious decisions, and pull together	*co*
8	Local people belong to, can get information from, and give views to a pressure group organisation like the Alde and Ore Association	*ao*
9	The Parish Council and Councillors need to advertise themselves more and be more pro-active in flood management issues	*po*
10	There needs to be enough money to fund projects	*f*
11	Opportunities to be practically involved need to be provided	*p*
12	Solutions need to be realistic, less bureaucratic, seen to be being done, and more integrated, before decisions are trusted	*d, nd, sol and lc*

A summary of how the issues were identified follows.

In the follow-up from Q interviews, concerns expressed in the interviews were used to identify issues that could be barriers to involvement. These were reflected back to participants at the workshop as problems with participation in flood management. The majority of information about flood management comes from organisations. Interviews reflected cause for concern about the Environment Agency and Suffolk Coastal District Council because they were perceived not to have *"local interests at heart"* and they *"lacked the experience*" to address this in their policies. This issue was differentiated from lack of awareness of flood risk (Issue 3) and lack of trustworthy and accessible information (Issue 4) because it mostly reflected an attitude towards honesty and trust. The issue was therefore identified as **Lack of trust in organisations (Issue 1).**

People with **Little interest in the sea or river (Issue 2)** only found out about things when it affected them, also "*no-one asked what their interests were*" and "*people wanted conflicting things"*. **A lack of knowledge and awareness of flood risk (Issue 3)** stemmed from a perception that flood risk was not as bad as they made out, claims about "*sea level rise was exaggerated"*. They were aware of *"no discussion in the village about flood risk*" and some local people thought it "*would not matter because it would not happen in their lifetime"*.

There was a general issue with a **Lack of trustworthy and Accessible Information (Issue 4)** with concern for the 'quality of information', its 'appropriateness' for different people and the way it is 'distributed'.

The issue of **No Time and Apathy (Issue 5)** because "*people sit back and are complacent*" "*it is difficult to make time because of bringing up children*" and the apathetic response of "*this is where we live and there is not much we want to be involved with*". The reason for **Lacking in Confidence (Issue 6)** was for example people thought their opinion would not make a difference and they did not feel listened to.

Not Feeling Part of the Village (Issue 7) was derived from feelings that there was no-one to represent them. The part of the community in the village they felt they belonged to was not included in decision making and some people did not know

where or who to go to for flood management information. **The Alde and Ore Association (Issue 8)** and **Parish Council and local Councillors (Issue 9)** could provide ways for people to be represented **Lack of Funding (Issue 10)** comments were made when people recognised *"money was tight*", and "*not much was expected from central government"* some thought that "*political pressure needs to be exerted to get more mone*y" possibly cheaper solutions need to be sought and "*not to waste money on consultants*".

Some people thought there were '**Few Practical Opportunities' (Issue 11)**. People ought to be encouraged *"to write and protest more*" and have opportunities to provide practical help in the event of flooding. The last problem identified was that of **Problems with Process of Solutions and Decisions (Issue 12),** where delays with decisions that were not realistic and did not include local groups and individuals encapsulated problems with the involvement process.

Before a discussion of the results of prioritisation of the issues by the workshop participants, analysis was undertaken of the methods suggested by the post Q interviewees (method solutions were also sought in the workshop and are reported in Table 5.35 and analysed in Section 5.6.1).

5.4.3 Methods suggested for participation during follow up to Q sort interviews

When discussing problems and reflecting on their choices of statements in their Q sorts, follow up interviewees suggested their own personal preferences for engagement or made suggestions for other improvements. These responses helped to inform the answers to Research Question 4. *What ways and methods can be identified to improve participation in coastal flood management?* The preferences and suggestions appear to fall into two categories, those using more formal methods (shown in red italics in Table 5.32) and those of a more informal nature. The first column of Table 5.32 lists the Factor groups the interviewees belonged to from the Q sort; the second column represents those interviewees' personal preferences for methods when interviewed. The third column of Table 5.32 contains suggestions they had to improve involvement.

Table 5.32 Personal preferences and suggestions for engagement methods in flood management from follow up interviews

Factor	Personal preference	Suggestions
Factor 1 A Knowledgeable Perspective	Alde and Ore Association	Taking consultation to the people
	Parish Council	Personal contact
	Estuary Planning Partnership for the Alde and Ore	'Hijack' other meetings
	Independent Sustainability Group	Active protest
		Informal networks
		Village Wide Questionnaires
		Lobby MP / Parliament
		Grass Root movement
		Sponsored flood management drama
Factor 2 A Political Perspective	Alde and Ore Association	Personal contact
	To be asked personally	Petitions/protests
	Self help	*Use local MP*
	Parish Council	Informal network
	District Council	*Write letters*
		Meetings
Factor 3 A Sceptical and Pragmatic Perspective	*Exhibition*	Informal networks
	Parish Council	*Parish Council*
	Contacts posted	Decision made by a local river group
	Practical situation / emergency	*Decision made by the Government*
	Ballot	
	Alde and Ore Association	
	Informal networks	
Factor 4 A Sceptical and Locally Attuned Perspective	*Parish Council*	*Parish Magazine*
	Informal networks	Petitions
	Internet	Internet
		Ask Local MP
		Fundraising
		Introductory information pamphlet
		Money incentive for the young
		Flood management drama
		MP surgeries
		Contact numbers publicized
		Central information point
		More pro-active Parish Council
		Community news / computers
		Texting service

Table 5.3.2 continued

Factor	Personal preference	Suggestions
Factor 5 An Engaged and Disengaged Perspective		
	Activity based, like information given on walks	Writing and protesting
	Personal Contact	Informal communication
	Use of e-mail	*Use PC, SCDC, Government and local MP*
	Fund raising/task orientated	Use local events
	Alde and Ore Association	Contact points
	Exhibition with good information. to take away	Produce a local film
	Interest group meetings	Use local press more
	Interviews	*Lobby local MP*
		Flyers to every household
		Self help
		Informal communication
		Feedback both ways
		Use local information/pressure groups Alde and Ore Association and SCAR (Suffolk Coast Against Retreat)

(Note: Formal means of engagement methods are shown in italicised red text).

Table 5.32 shows what could be classified as formal ways and informal ways to increase involvement in coastal and river flood management. In this analysis of the personal preferences for involvement there appears to be an equal number of methods of involvement that have both formal and informal structure. In further suggestions (the third column) made by interviewees, there were many more informal ideas to formal ones. This could indicate a need for more informal ways to involve more local people.

The 'formal' structure of methods used for engagement can be classified as those that are the result of deliberate decisions in organisational design (Rank 2008). Within organisations the formal structure is often seen as essentially top down. The formal process has rules and order. It equates a person to a role and has documented policies and procedures (Lesser and Prusak 1999). In this case the organisations are parish, district councils and the government mostly through Defra, and their agent the Environment Agency. Apart from Factor 5 respondents, all the other Factors 1, 2, 3, and 4, indicated they would personally use (or were part of), the Parish Council. There was considerable criticism of the Parish Council, but it was also stated as having the potential to act as a conduit for flood management information. In

addition it could provide feedback opportunities both to and from district councils, and government through MPs and into the Environment Agency.

There was a range of informal organisations and methods preferred. Of the informal organisations the network of the Alde and Ore Association featured as a personal preference in three of the Factors (1, 2 and 3). However, informal networks were cited in some form by all the people in each Factor. One idea of informal structure in networks is based on the idea of a self-organised group, sharing knowledge, solving common problems, and exchanging insights, frustrations and stories (Lesser and Prusak 1999). Their emphasis is on using communities of practice to increase social capital to better manage knowledge resources. The idea of Communities of Practice stems from the work of Etienne Wenger in 1998, who proposed the idea with anthropologist Jean Lave. In their study of apprenticeships, they found that apprentices learnt in a community that acts as a 'living curriculum' and they would therefore engage in the practice of collective learning (Wenger 2006).

An organisation such as the Alde and Ore Association has much to recommend it as a Community of Practice and could provide a template for other communities to help them come together in the common interest of flood management. The Association over time has fulfilled and is fulfilling Wenger's criteria for a Community of Practice, in that it appears to have the three characteristics he cites as being crucial. They have assimilated a shared 'domain' of competence and knowledge about flood management. They engage in 'joint activities and discussions, they help each other and share information'. 'Members interact and learn together in a community of practice' and have a shared practice as 'practitioners'. There is evidence of this in the Association's provision of wide ranging and detailed accounts of flood management issues in their publications and meetings. They undertake significant informal networking amongst members and devise strategies such as a team of wardens who monitor river defences that inputs into the Environment Agency. Members of the Association are also very active in attending and being invited to consultations and workshops about flood management in the area and have engaged actively with local and national politicians to pressure for changes in policy. The Association also now form a more 'executive' role in the newly formed Alde and Ore estuary Partnership (AOEP) as a results of the outcome of the 'Futures' project, (see Section 3.5.2).

It was said by a number of respondents across the Factors (Factor 3, 09NCM4; Factor 1, 36HHF4; Factor 2, 05LHM4; Factor 5, 04HHF4) that as an individual it was more difficult to be heard and it was more effective if their views were put through a group. If an organisation does not exist that people are willing to engage with and join, and some people in Orford do not want to join the Alde and Ore Association, other ways must be found to include them. Other informal ways, as suggested by many of the interviewees, are from activities that local people could already be engaged in. For example: a river group like the sailing club or the fishermen; people having other meetings where flood management could be included on their agenda. 'Hijacking' other people's meetings, as suggested by one interviewee, could be a way to access other groups of local people not involved in flood management, initially with information, then for feedback at a later stage. Lack of feedback was a problem stated by a respondent who loaded on Factor 5 as an engaged participant (25HHM3). He worked for the Environment Agency and felt there was a need for feedback both to and from the Agency.

Respondents also suggested a number of individual actions and opportunities to get local people more involved. Most of these suggestions were to obtain more information, such as attending a drama or film for information, writing letters or texting, attending protests, receiving more information through the mail, local press or newsletter.

Despite the fact that few people chose the statement (40) about using the internet in the Q sort, (there were low Z scores in each Factor from the Q sort F1= 0, F2 = -1, F3 = 0, F4 = 2, F5 = -1), a few respondents mentioned it in their interviews as a source of information. One (34NCF3), thought a network of interested people could be one way towards greater involvement for some people, using a social networking site. There are some new examples of this, for example, an Australian researcher described moves to improve citizen involvement using online services that were both 'top down', information could be 'spun out', or 'bottom up', which did provide an opportunity for grumbling, but also provided a possibility for immediate responses (Bruns and Wilson 2009). This Australian example also had the facility for Email alerts. In the Orford area, the Environment Agency already Emails local people at

flood risk. Facebook is used by the sailing club and the Alde and Ore Association has its own website.

A further way that individuals may get involved is through evolving more local networks that often stem from grass roots movements. This is an aim of the Localism Act (2012), shifting more governance to local communities, discussed in Section 1.2.1. One such informal movement was suggested by respondent 28HHM4, who started a group to get people motivated to audit their own carbon footprint in the village. The calculations made the exercise too difficult for most village people who initially agreed to become involved and it did not continue. However the person who initiated this was one who was identified as a potential leader, who could have credibility with local people and be a 'central connector', linking in with most people (Cross and Prusak 2002). Identifying such people in a location can promote networking that can help solve problems and assist with the dissemination of specialist information (an advice network). This can, possibly help people share political information and back up one another in a crisis (a trust network) or exchange information on a regular basis (a communication network) (Krackhardt and Hanson 1993). Although these ideas refer to networks in business, the idea of networking and possibly mapping different connections in a village community could identify people who can informally disseminate information to and get feedback from, people not usually involved. The village garage that was used as a drop off point for returning questionnaires is such a location. The attendant at the garage disseminates information and has won a national award for her efforts.

Further examples of individual involvement are seen through some respondents' personal preferences for doing something. Examples given were to engage in a practical emergency response (Factor 3, 02LLM1, Factor 5, 35NCM4) or deliver a petition, door to door, Factor 2, 10NCF3). Other respondents would like to find information out individually, but need to know the source of the information they seek. To establish this link, contact details need to be posted, or an opportunity for face to face contact provided. However the 'drop in sessions' featured in Statement 19 were not a popular means of engagement, but there would be alternatives. The Environment Agency exhibition, favoured by some respondents allowed attendees to talk to Environment Agency officers about the plans and strategies they had on display.

It is not just going to be just one method to involve as many people as is desirable to satisfy the idea of 'shared governance' (O'Riordan and Ward 1997; Kay and Alder 2005). In addition to the methods that the local County Council, District Council and Environment Agency are planning to use, these recommendations based on preferences and suggestions from interviewees in this research for improvements in involvement in flood management in Orford, should also be considered:

1. Increased use of Parish Councils (PCs). Local people and The Environment Agency need to engage with PCs more and PCs need to be more pro-active.
2. Use the Alde and Ore Association as a template for a 'Community of Practice' for setting up, and engaging with, other coastal and river groups.
3. Consider more informal methods to access increased numbers of the local population for information and feedback. To include using local preferences for local sources of information and more practical involvement.
4. Identify and use local networks of individuals as information and feedback conduits.
5. Publish contact details of people to access for information and feedback about flood management strategies (dedicated phone numbers and e-mail addresses).

The next section analyses the results of the workshop.

5.5 Workshop results, prioritisation analysis of the main issues and possible solutions

The number of 'concluding issues' or barriers to participation was reduced from twelve to ten for the workshop. This was because it was not felt that the Alde and Ore Association and Parish Council could not be presented as a problem (see Section 4.8.1). However they did feature as part of the solutions. The issue that did include local community problems was 'Not feeling part of the village', which could reflect some people's problem with joining the Alde and Ore Association or belonging to or using the Parish Council, or problems with factions in the village, like resentment of

second home owners by ‘locals’, or the feeling of exclusion from village life felt by some incomers. The issues presented at the workshop were therefore:

1 Lack of trust in responsible organisations.
2 Little interest in the sea or river.
3 Lack of knowledge and awareness of flood risk.
4 Lack of trustworthy and accessible information.
5 No time and apathy.
6 Lacking in confidence.
7 Not feeling part of any community in the village.
8 Lack of funding.
9 Few practical opportunities.
10 Problems with the process of solutions and decisions.

Each of the concluding issues above was presented in a slide presentation at the workshop with statements from interviews in explanation of how these issues had been devised from post Q interviews (an example is found in Section 4.8.1 Figure 4.5 and the rest of the issue explanations can be found in Appendix 7). During the workshop, attendees were asked to consider what their individual priorities would be for the ten issues.

The eight participants at the workshop were asked to rank the issues in order, from 10 which represented the issue they felt most important to one, the least important. The numbering given therefore shows what the participants felt were relatively more or less important issues. Many of the workshop attendees chose to rank some of the issues with equal importance or unimportance. When reviewing the individual selections from the 10 issues they can be seen to be as individual as the people who made them. This is an indication of why an easy or overall solution to the problems of improved involvement is difficult. However it is possible to see some similarities and differences between individuals, who have contributed to this research from the beginning and have different perspectives and levels of knowledge.

Table 5.33 shows the priority scores given to concluding issues by each participant of the workshop. The additional individual issue priorities in red print were sent by post by two Factor 2 perspective people, and one Factor 5 perspective person who worked for the Environment Agency and could not attend the workshop, but agreed to be interviewed.

Table 5.33 Individual results of the importance of issues

Issue ⟶ / No. in Sort ↓	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Factor/ Perspective**
03HHF4	7	4	5	6	10	1	2	8	3	9	1
36HHF4	6	5	7	5	7	1	3	10	8	8	1
11HLM3	1	1	4	1	7	5	1	10	7	9	1
15HHM4	8	1	2	5	10	4	3	7	6	9	1
09NCM4	7	10	9	5	10	4	3	7	6	9	3
13LHF4	8	10	9	1	1	1	9	10	1	1	4
32LLF1	9	4	8	10	7	3	1	6	5	10	4
04HHF4	8	3	10	5	7	1	2	10	7	5	5
25HHM3	9	2	8	7	8	2	1	8	1	10	5
10NCF3	6	7	10	4	8	1	2	9	3	5	2
18HHM4	4	8	7	3	10	9	2	1	6	5	2

Key for Scale: 10 is the most agreed with issue, and 1 is the least.

To take each issue in turn, there appears to be a lack of, or need for, trust in responsible organisations. Seven out of eleven respondents scored it seven or above. Both of the low knowledge participants highlighted issues with trust, the others with high knowledge varied, but many seemed to think trust was an important issue to address. Many other examples of research have also recognised that trust is a fundamental problem to overcome before improved participation can occur (Petts 1999; Blake 1999; Hailey 2001; Webler and Tuler 2006).

The issue of interest (possibly due to river use, or living near the river and sea) was not seen as a priority to Factor 1 people in this selection, although it had been identified as such in the Q sorts. Two people, one from each of perspectives 3 and 4, did recognise a lack of interest in the river as a priority. Despite the fact that every

effort was made to explain the issues, they could be open to interpretation. Unlike interviews, the workshop environment made it difficult to ask individuals more information about their chosen selection.

As can be expected, the knowledgeable Factor 1 people did not in the main select a lack of knowledge as a major concern. However there was a tendency for less knowledgeable people (Perspectives 3 and 4) to rank this more highly. There was also a concern expressed by knowledgeable people in the Perspective 1 interviews, that the delivery of knowledge needed improving. This was also reflected in their Q sorts.

Lack of trustworthy and accessible information was not selected as particularly important by all but the one young member of the workshop participants. By giving this issue a high priority mark of 10, she demonstrated a cynicism that some of the low knowledge respondents in Perspective 4 participants had.

Having time to become involved did seem to be a priority to all but one participant, who had low knowledge but high involvement. Her willingness to get personally highly involved, may explain this lower priority ranking.

Of the issues that were mostly low in the priority ranking, lack of confidence was one area that had a lower priority than others, except for one Factor 2, politically orientated person. Feeling 'Part of the Community' was also not selected by all but one participant who was a 'locally attuned' Factor 4 participant. This was surprising because it was stated as a factor in many of the post Q follow up interviews. Perhaps it is an issue of concern in the village, but not thought a problem that inhibits involvement in flood planning. Similarly in the Q sorts a practical preference was identified as a characteristic of Perspective 3, however the participant in the workshop did not reflect this here, although he did in his Q sort and follow up interview. This is an indication of the problem of drawing conclusions from what people say (or do) at different times and is a reflection on the complicated motivations for environmental behaviour (Kaplan 2000).

Lack of funding was selected by a majority of participants as important, with just the young person at the workshop and one postal Factor 2 perspective person, not selecting it as a priority. Getting the process right was also selected as important by 8 out of the 11 respondents. People who did not select the process as a priority had a mixture of knowledge and higher involvement. Views obviously vary, but a concern with getting the process right, is a recognised problem by researchers and planners, to enable greater inclusion in environmental planning (Dalton 2006; Webler and Tuler 2006). The views of the low scoring people on process cannot be explained without asking them; this would require further follow-up.

The results of a discussion in the two groups at the workshop to collectively choose important issues are shown in Table 5.34.

Table 5.34 Selection of priority issues after group discussions

	Issue →										
	F ↓	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***
Group 1	1,3,4	8	5	6	5	10	2	3	8	4	9
Group 2	1,4,5	ns	ns	8	ns	8	ns	ns	10	ns	9

(F = Factor representatives in the Group; ns = no score/not selected)
(On a scale of 10 to 1, 10 is the highest scoring priority issue)

The Groups were asked to prioritise the issues, but due to time constraints were also asked to concentrate on finding the most important, possibly the top four. The second group chose four main issues and the first group prioritised all the issues with a ranking, where some issues were given the same scores. It is inferred that the second group therefore thought the issues not selected were less important even though they had not ranked them in order.

In the group discussions of the issues, as shown by Table 5.34, there was consensus in the priorities in the selection of: *Funds (Issue 8)* to carry out flood protection (both groups); *Time (Issue 5)* given to become involved in flood management (both groups); and problems with the *Process (Issue 10)* of involvement (both groups). Group 1 had an additional concern about *Trust (Issue 1)* and Group 2 for *Lack of*

Knowledge and *Flood Risk Awareness* (Issue 3) issues. These four main issues for each group therefore became the focus for discussion as to what solutions could be suggested to overcome them. This process was aided by reflecting on previous suggestions made by the respondents for preferred methods of engagement, shown in Figure 4.6, and a list of method suggestions found in Table 5.32 were utilised. The solutions to the issues prioritised at the workshop are shown in Table 5.35.

Table 5.35 Solution suggestions from workshop group discussions

Problem	Solution	Group
No time	A play in the village relevant to floods	1
No time	Distribute information to where local people are. Shop and garage	1
No time	EA publish a list of work in the Village Voice Parish magazine and on site	1
No time	Encourage collective responsibility. Neighbourhood watch idea	2
No time/apathy	Flood management is a dull idea for people with other commitment inference-make it more interesting. If people find it 'dull' they will not get involved	2
No time	A local film or drama	2
No time	Use time in school and produce school projects for the community	2
Funding	Investigate funding by wealthy landowners. Landowners funded their wall maintenance in the past	1
Funding	Self help by local people with power delegated from government	1
Funding	Increase lobbying of local MP by people with 'clout'	2
Funding	An East Anglian region wide co-ordinated effort	2
Funding	An extended valuation of land to include agriculture and tourism, not just people and property	2
Funding	Use local media more and local people with media influence	2
Funding	Use the Alde and Ore Association for advice and contacts	2
Process	Narrow choices to identify what people do not want	1
Process	Create feedback using local media	1
Process	Become better informed by reviewing similar situation elsewhere, like the Dutch	2
Process	Encourage wider representation like commercial groups who could be affected	2
Trust issues	Lack of knowledge about what the EA does, (use information pamphlet produced for the Flower Show)	1
Trust Issues	Greater access to local government officers who form policy	1
Lack of Knowledge and awareness of flood issues	Use the Link, Parish Magazine. Have an exhibition at the Flower Show and have an Orford Flood Week to increase knowledge and awareness	2

5.5.1. Discussion of solutions from the workshop

The issue of the lack of time to give to flood management issues to attend meetings, exhibitions or for feedback from these events, has been a problem identified throughout the different stages of this research and other research, for example Ajzen 1991; Blake 1999; Webler and Tuler 2006. Not having a 'lack of time' characterised people loading on Factor 1 and 2 of the Q sort. Additionally, in post Q interviews, Factor 5 respondents identified lack of time as being a significant problem. Participants at the workshop objected to time being coupled with the idea of apathy. They thought these were two different issues.

If people do not have time to attend meetings, then it was felt that it should be up to the agencies to try to engage with them in ways that would take information to where people are. In addition, the Environment Agency should make agency presentations less 'dull'. More effort to provide information of the work in progress of the Environment Agency at local sites was also requested at the workshop. A question was asked about recent work on the river walls where shrubs had been removed that were thought to be a valuable wildlife habitat. The reason given at the workshop by Bill Parker, the ICZM Officer for Suffolk Coastal District Council who attended the workshop, was this clearance was carried out to allow better inspection of the state of the walls (the Environment Agency consider this a reconditioning work on the walls). This explanation was said to make the shrub removal more understandable and acceptable. It was commented by a workshop participant (04HHF4) that if knowledge of the work was more widely known it could improve understanding and possibly create less resentment of the work of the Environment Agency. This could also help towards building trust in their strategies.

There was a request for more inventive methods such as film and drama, which could be used to gain interest in the problems the agencies are trying to solve. A local film has been produced in 2013 with the input of local people and a professional film producer who has recently moved to the area. Other ways to involve local people are in practical projects such as 'neighbourhood watch' type schemes that have already been undertaken in the Orford area. Local people carry out inspections of the condition of the river walls and report these to the

Environment Agency. The Environment Agency has accepted the data and encourages its production (Bettinson 2011). Another example of encouraging local involvement was a school project conducted in 2008 called the Ebb and Flow Project. This project, in conjunction with the local Suffolk Coastal District Council, engaged local schools with flood management issues (Smith 2008). However projects need repeating to engage with different school populations, new parents and the wider community.

There were seven references for solutions to a perceived and actual lack of funding shown in Table 5.35. Funding has become more of an issue over the years since the last flood management proposals in 2004. Local people could be more aware, or less surprised, when informed this is a problem. There is therefore an increased awareness of the need to look for other funding sources and local self help solutions. A second response was also to increase local lobbying of politicians to highlight the need for increased local funding and by using the local press and media in general, along with the local Alde and Ore Association pressure group. Funding was also thought to need to take into account the value of flood risk land, not just for people or property, but also for agriculture and recreation uses. This would necessitate increased involvement of the agricultural and other landowners in the discussion of funding sources.

Solutions to problems with the process of involving people in flood management included a perceived need for the responsible agencies to devise better ways to include people in decision making, accepting that they are not fully informed. The suggestion was to find out what people feel are unacceptable options. The rejection of what was not wanted was felt an easier task for less informed people than to decide what the best option would be. This could be a strong argument for encouraging improved awareness and provides a challenge to the agencies responsible, when they have to present options to non-expert local people. However, the 'Option' approach that the Environment Agency used in its 2004 strategy consultation resulted in no action to any of the flood management solutions suggested (see a discussion of this strategy in Section 3.6.2).

Further attention and information needs to be sought for comparison of the process in other areas, such as that of the Dutch policy towards flood management was suggested (see Table 5.35). Other solutions related to better integration and 'links' between groups. This is a major aim of the SCDC 'Futures' project (see Section 3.5.3 for a description of this project), and the 'Pathfinder Project' (described in Section 3.2.2).

Solutions suggested by the two groups at the workshop had two differences. For Group One the issue of Trust was selected as a priority. To overcome this problem it was felt that Environment Agency roles and aims ought to become more widely known, and use of local events was suggested. Also local government agents, who are responsible for flood management decisions, ought to be more accessible to local people.

Group Two selected Lack of Knowledge and Awareness of Flood Risk in their prioritising of most important issues. They thought that local use of information sources, such as the village flower show, schools and magazines, are ways to inform and engage with more of the local community. Methods selected that were preferred by the two groups were:

Grass root movement
Sponsored flood management drama
Use local MP
Parish magazine 'The Link'
PC magazine 'Village Voice'
Information pamphlet
Use local events
Produce a local film
Self-help
Feedback (both ways)
Use the Alde and Ore Association
The 'Futures' project of the local District Council

Additional methods suggested by the two groups:

Group 1:
Use the local shop and garage to distribute information.
Consider funding by wealthy landowners
Narrow the options to what is not wanted
Better access to responsible local council officer

Group 2:
Village school involvement
A coordinated East Anglian effort
More inclusive land evaluation
Use local media people
Learn from other areas of flood risk.

These suggestions are more thoughtful, and possibly more useful, than those suggested by the questionnaire. Question 11 (see Figure 5.7 and Table 5.13) suggested a limited choice of methods, of which an exhibition and public meeting were the most chosen options. These were designed by the Environment Agency and were methods that people were familiar with. They were also preferred by people with higher knowledge scores. For the lower involvement and knowledge score people a different approach could be more successful in improving their participation in flood management. To explore this possibility an analysis was undertaken to assess if there were any differences in suggestions for methods of involvement between attendees at the workshop that had higher levels of knowledge and involvement as opposed to those with less knowledge and involvement. Individual method preference sheets (Figure 4.6) were distributed at the workshop with results shown in Table 5.36.

Table 5.36 Similarities and differences in HH (4) participants and others with lower knowledge and involvement HL, LH, LL, NC (4).

Method	HH	Others
Personal contact	√	√ (NC)
Informal networking	x	x
Highjack other meetings		√ (NC (LL)
Active protest		√ (HL)
Sponsored drama	√	√ (All)
Petitions		√ (LL)
Use local MP	√	√ (HL)
Write letters		√ (HL)
Use Parish Council	√	
Parish Magazine (Church)	√	√ (HL, NC)
Village Voice (PC)	√	√ (HL, NC)
Fundraising		√ (LL)
Decision made by Government.	x	x
Information pamphlet	√	
Money incentive	√	
Contact numbers published	√	
Central Information Point	√	
Use local events	√	√ (NC)
Local film	√	√ (LL)
Use local press		√ (LL)
Self-help	√	
Alde and Ore Association.	√	√ (HL)
Exhibition	√	√(HL, NC)
e-mail	√	√ (HL)
Information walks	√	
'Futures' project	√	√ (HL)
EPP	√	√ (HL)
Facebook and Twitter		√ (LL)

Similarities are seen in the need for information to be provided and presented to recipients in formats such as: personal contact; a drama and film; and locally produced magazines. Attendance or knowledge gained from local events and organisations such as the Alde and Ore Association, exhibitions and the 'Futures' project and EPP, were also selected by both High Knowledge and Involvement people and 'mixed' lower knowledge and involvement participants.

Differences appeared to occur in the increased reference to a preference for information sources by high knowledge and involvement people. These included the use of pamphlets, contact numbers, and information points. This could be an indication that knowledgeable people are more likely to seek out information more independently. They also suggested using self- help.

Those who scored lower for knowledge and involvement appeared to favour more active approaches to participation, such as protest, fundraising and using Facebook and twitter. There were also suggestions of hijacking other meetings to spread flood management information and views. Again because of low numbers of participants, findings are not conclusive, but the results give an indication that people with different levels of knowledge and involvement may prefer different ways and methods to participation.

5.6 Summary

As stated, this has been an iterative process, where one method of research has informed the next. There has been knowledge found in each of the method results and this has been noted and discussed, but essentially the aim has been to work towards recommendations for improving public participation in flood management and answer research Question 4. What ways and methods can be identified to improve participation in coastal flood management?

A main finding is that there are individuals and groups of individuals with different barriers and attitudes to participation in flood management. Evidence has been from the results of Q analysis (see Section 5.3.2 and Table 5.27), which show that different people will need different approaches, or have different approaches, because of their different perspectives for their actual or potential involvement in flood management. As a result of Q and post Q interviews a list of recommendations were suggested, which were:

1. Improvements in the use of Parish Councils. Parish Councils featured as a way for local people to improve their participation, but it was also noted that there are problems with their effectiveness (see Section 5.5.1, Governance Issues). However it can be seen as the most practical route to political involvement by many local people (see Table 5.32).The DEP Partnership, working towards improving public participation, is harnessing parish councils with repeat meetings for their greater inclusivity in the estuary plan. The Chair of this Partnership is a District Councillor and is therefore

motivated and able to involve parish councils. It is often the motivation of individuals that can drive projects forward.

2. A consideration of an organisation that fulfil ideas of a 'community of practice', such as the Alde and Ore Association. Members of the Association have become very involved with delivering action planning, the outcome of the 'Futures' project' described in (Section 3.6.3). In the past, the Association has funded flood research projects (Pye 2005) and the Alde and Ore Estuary Partnership (EPP) (see Section 3.6.1.). Early relationships with the Environment Agency, especially after the 2003 policy change, described in the introduction, were not good. However since that time, the Association. has become an important partner in flood management planning for the estuary. It is for future observation and research to see how relationships within the newly formed Alde and Ore Estuary Planning Partnership (AOEP) develop.
3. Use of more informal methods of participation (see Table 5.32). Informal methods have not been generally planned by the Environment Agency or local government. However there has been more evidence in Suffolk, especially the Suffolk Coastal District Councils 'Futures' project (Section 3.5.3), and Deben Estuary Partnership Plan (Section 3.6.1). These two projects are engaging local populations in more informal methods that have also involved input from the Environment Agency. Different people do need opportunities to get information and learn in different ways. Evidence in found in the analysis of Q (see Section 5.3.1), and solutions to flood management engagement problems from the workshop described in Section 5.5.1.
4. Improved contact details for those responsible. This recommendation was also selected as a solution to improved participation by workshop attendees (Table 5.35).
5. Identifying local networks to disseminate information. There is scope in the Suffolk area for an improvement in networking with local groups. Networking was not a method selected by any participants (Table 5.32 and 5.36). However it has been an engagement method that is being encouraged by the Government since 2011, in The 'Localism Act' (see discussion in Section 1.2.1). Participants did suggest the inclusion of commercial groups

(Table 3.35), which is increasing a network. It could be that people did not understand the term networking, and this may explain why it was not selected.

Including all possible groups or individuals who may be affected by flood management issues is always going to difficult. A future aim needs to be to keep trying to be as inclusive as possible, for there is no 'one size fits all'.

The identification of differences in perspectives to flood management gives credence to the original premise in the abstract to this research that just one or a few different methods are not going to involve many people in a population. Method preferences and suggestions were also indicated from the results of Q and the workshop and are reported in Sections 5.4.1 and 5.6.1.

The concluding Chapter 6 states the major outcomes of the research, a critique of the research outcomes and methods, and suggestions for future research that indicate ways towards further improvement in public participation in coastal flood management.

Chapter 6 Main conclusions and recommendations

6.1 Introduction

The main aim of the research has been to explore ways to improve public participation in coastal flood management. Chapter 1 reported some of the consequences of a lack of effective participation. These include delays in implementation of flood strategies, protest by local residents, bad press, the formation of pressure groups and changes in funding. The Environment Agency (EA) is seen as mostly responsible for flood planning along the Suffolk coast and estuaries (see Chapter 3 and the results of Questions 8 and 9 in the Questionnaire). They have been making efforts in the years since 2003 to have more productive and less confrontational relationships with local populations.

This research has observed the Environment Agency strategies for improved participatory practice in the estuaries of the Alde and Ore and Deben rivers in Suffolk; this is described in Sections 3.5.2 and 3.5.3. These strategies are essentially 'top down' and have been analysed with particular reference to devolving decision making that is striving for not just 'enticing' and 'co-learning' relationships with local populations but moving towards greater 'co-acting' (see Table 1.2 and analysis). Analysis of individual state environment agency practices in the USA, were also reviewed in research by Webler and Tuler (2006). They identified relationships between environment agencies and local stakeholders. Relationships were described from agencies making the decision with no social capital and a lack of trust and conflict developing (a consequence of this similar scenario was reported in the Blyth Estuary response (see Section 1.1), to collaboration between the Environment Agency and local people in Suffolk. Working in collaboration is the aspiration of the EA and Deben Estuary Partnership (see Sections 1.3.1 and 3.5.1).

Strategies that have failed through lack of social capital and those that are now being pursued to collaborate with local partnership groups have formed a background to this research. Previous approaches were felt not to answer the question of how to improve public participation and reconcile poor relationships between the public and the Environment Agency in Suffolk. Finding a more 'middle' pragmatic way (see

arguments for a pragmatic approach in Section 4.2), that is not just seen as a 'top down' strategy with little opportunity for public participation, or 'bottom up' demands which an agency may feel it cannot fulfil, could improve relationships and the effectiveness of public participation. Relationships, as Webler and Tuler (2006) identified, are not just between agencies and recognised stakeholders. There is also a need to make efforts to engage with as many of the public as possible to affect a satisfactory outcome. To achieve this aim, a direction for this research was also derived from the work of Webler and Tuler (2006) that concluded:-

"Knowing what people think about participation and knowing what people want from public participation is essential in crafting a legitimate and effective process and delivering a programme that is viewed as meaningful and successful"(p 699).

Crafting an effective process that will attract all those who need or want to be involved will not be achieved by planning just one engagement or method. People will bring to engagements different levels of knowledge and preconceived views; and some will not want to attend engagements at all. If only formal procedures are used, they can sometimes be too formulaic and overlook relationships such as trust and friendship that are needed for success (Hailey 2001, Cleaver 2001). Other than by being directly affected, people will become engaged for many reasons, they may have been encouraged by friends, or it may be easy for them to do so (Ajzen 1991). They may prefer collective action (Blake 2001) and join a protest on a beach or a pressure group, or 'bowl alone' (Boggs 2001) and be motivated to individual action. If engagement with more people in a population is required, then more needs to be known about the preferences of that population.

This research has sought to search for differences and similarities and preferences to add to an understanding of the motivations and difficulties that people have in getting involved in flood management. To research a population's differences and similarities in participation in flood management, it was thought that levels of knowledge and involvement would have an effect on the way people approached, or did not approach, involvement in flood management (see Section 3.4). It is agreed among some researchers (Bodmer 1995,; Sturgis and Allum 2004; Dickson 2005; Johnson and Chess 2006) that just improving the availability of information and

acquisition of knowledge will not improve involvement. However it is also argued (Habermas1987; Miller 2001) that not having the information or knowledge will be a barrier to involvement. It is also understood from research that knowledge will not be the only barrier to involvement (Ajzen 1991; Blake 1999; Lorenzoni et al. 2007). How barriers to participation vary between people with different levels of knowledge and involvement needed investigation to give insights into engagement preferences. It was also thought that just researching the reasons why people did not become involved, possibly by asking people with low levels of knowledge and involvement, would not be the only way to understand how to improve participation. It was necessary to find out why people had become involved with coastal flood planning, by seeking reasons for involvement for those with higher levels of knowledge and involvement. Once barriers and enabling factors were identified, then ways to motivate and overcome difficulties with involvement could be sought.

Section 6.2 summarises the main findings of the thesis to answer the research questions: *What knowledge does the local population have of the causes, responsibilities and management of coastal flooding? What involvement do local people have in coastal flood management? What are the barriers that local people have to participation in coastal flood management? What ways and methods can be identified to improve participation in coastal flood management?* Section 6.3 provides a critique for the research. Section 6.4 makes recommendations for future research directions.

6.2 Main findings of the research

The first major aims of this research were to find out levels of knowledge and involvement and answer the research questions:
What knowledge does the local population have of the causes, responsibilities and management of coastal flooding? What involvement do local people have in coastal flood management?
This research found that there was generally low public involvement of people in coastal flood management in Orford. 74% who responded to the questionnaire scored one or zero out of 10 for involvement, (see Section 5.2.4). These results show that the current involvement strategies do not engage many people. However, the main

use of the knowledge and involvement assessment was not to find a relationship between the two characteristics, but to identify local people with these characteristics. When a Spearman's statistical test was applied to analyse the relationship between the knowledge and involvement, there was found to be a weak positive relationship with a correlation coefficient of 0.37 and significance level of 0.0005. This is perhaps not a surprising result. Literature suggests that there is not strong evidence for a relationship between information deficit and involvement or action to be involved (see Sections 3.6 and 6.1). Although it can be argued that information provision is not the same as having knowledge about a subject, knowledge can be gained from information given.

It was thought at the outset of this research, that lack of knowledge would not be the only reason why people do not become involved. There is much complexity in social behaviour (Silverman 2001). Finding out the levels of knowledge and involvement was a starting point for analysis and also used in further reflection on results from Q methodology and a workshop into an investigation into other reasons for involvement.

Figure 6.1 shows the categories for levels of knowledge and involvement that were found in the local population of Orford, Suffolk. The results within the categories are not based on the perceptions of the researcher, or by participants' self-assessment, but on a calculation of scores that achieves a more accurate reflection of their actual knowledge and involvement in coastal flood causes, consequences and management (see Appendix 1 for questionnaire and marking scheme and Section 5.2 for the results of the questionnaire). The four outlying categories (HL, HH, LL and LH) shown in Figure 6.1, were identified from scores of one standard deviation from the mean. The central category, No Classification (NC) was made up of people not exceeding one standard deviation from the mean scores for knowledge and involvement.

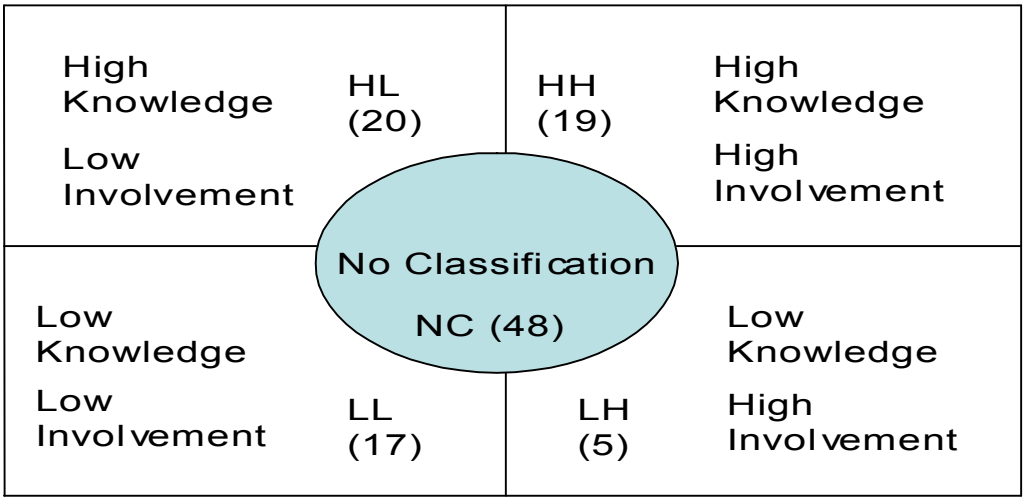


Figure 6.1 Five categories of Knowledge and Involvement identified in this research

There were three categories with similar numbers of respondents (HH, HL and LL), one with lower numbers (LH) and one with the highest numbers of people (NC). The fewer participants in the category LH could be explained by the fact that three of these participants appeared to have knowledge about flood management, but did not answer the questions in a conventional way, that is some knowledgeable answers were made, but complete answers to the questions were lacking. The other two participants in the LH category did not appear to be knowledgeable, but did attend flood management meetings, which was the main indicator for involvement. However members were still used for sampling because the aim was to get as many different and diverse views as possible. Generally it was felt that the method of using standard deviation calculations of scores, differentiated well between the categories.

The different designation of levels of knowledge and involvement was therefore a method for sampling different reasons for knowledge and involvement. This was then used to determine barriers and ways to improve public participation in coastal flood management and answer the research questions

What are the barriers that local people have to participation in coastal flood management? What ways and methods can be identified to improve participation in coastal flood management?

Barriers to participation were discussed with interviewees in terms of the issues they had with involvement in flood management. However, some of the issues may be of relevance to public participation in general, especially when governments are planning interactions with local people. A list of issues from post Q sort interviews were identified as a result of extensive coding analysis of the Q sort responses and the post Q interviews (see Section 4.7.1. and Appendix 5 for an explanation and examples of coding for the post-Q interviews). There can therefore be some confidence in their derivation because of their robust provenance. The issues identified were:

1 Lack of trust in those responsible for providing information about flood management
2 Little interest in the sea or river
3 Lack of knowledge and awareness of flood risk
4 Lack of accessible information
5 No time and apathy
6 Lacking in individual confidence to participate in flood management
7 Not feeling part of the community
8 Lack of funding
9 Few practical opportunities
10 Problems with the process of agreeing solutions and decisions

It is proposed that these issues could be of value, not just as an outcome of this research, but could also form a basis for consideration in planning and reflective assessment for other flood management involvement strategies. They could provide a checklist for both a planning and administering agency, such as the Environment Agency or local council responsible for flood management. In addition they could be an assessment tool for a local population, possibly through their parish council, to see if major issues have been taken into account. In the experience of this researcher, consultation is often started by asking people to identify the main issues. Examples of this process are a consultation meeting for The Suffolk 3c SMP2 (Guthrie 2007), a

Community Conference for a local councils 'Futures' project (Parker 2009) and local people's responses to a 'Portrait of the River Deben Estuary' (Block 2012). The list of issues to be addressed could be added to for local specificity, but it does indicate some of the main issues for problems with involvement in flood management as a major outcome of this research.

Initial recommendations were made from the coding for the EA and SCDC and sent to Sharon Bleese, Communications Eastern Area Officer for the Environment Agency and Bill Parker, Suffolk Coastal District Council ICZM Officer. It is thought that their planning for strategies for the 'Futures' project had some of the same conclusions as this research. That is, they needed to engage the local population in more varied and innovative involvement methods. Further meetings and discussions are to be held with these officers. Ideas about involvement methods are also being used by the researcher to aid the Deben Estuary Partnership (DEP). This Partnership is currently engaged in a plan for the whole of the Deben Estuary (See Figure 1.1 and Section 3.6.1). The DEP Plan includes at its centre a flood management strategy. The DEP is engaged in co-learning and aspiring to co-act (See Chapter 1 Table 1.2) with the Environment Agency, and is asking the local estuary population to participate in preparation for the production of their Estuary Plan in 2014. The recommendations from this research to assist public participation with the Deben Estuary Plan are to:

1. Make information honest and seen to be trustworthy.
2. Use the interests of local people to inform them.
3. Make sure the local population understands flood risk.
4. Make sure information is accessible to as many people as possible.
5. Be sensitive to the amount of time people have to engage, and take this into account when planning consultations.
6. Think of ways to improve people's confidence to take part in consultations and decisions.
7. Access as many different parts of the community as possible.
8. Identify and liaise with pressure groups.
9. Make more effort to engage with the local Parish Council.
10. Be creative about sources of funding.

11. Look for practical ways to engage the local community.
12. Policy Issues need addressing:-
    i) Decision inputs need considering.
    ii) Delays should be minimised and people kept informed along the way.
    iii) Be realistic in solutions.
    iv) Seek solutions from local people.

Five of these issues, (Issue 1, 3, 5, 10 and 12) selected in the workshop, were priorities identified and solutions suggested for improvements in participation in flood management by the attendees. Their solution suggestions are discussed in Section 5.5. These issues are important in recognising the priorities of this group of people and their solution suggestions and could reflect more general concerns. However, the small number of attendees at the workshop would indicate further research is needed to validate these findings.

The results of Q methodology also identified groups of people with different perspectives about flood management involvement. This was demonstrated through their choice of statements that they felt were like, or not like, their views about flood management.

The five factor perspectives were described as:
Factor 1- A Knowledgeable Perspective
Factor 2- A Political Perspective
Factor 3- A Sceptical and Pragmatic Perspective
Factor 4- A Sceptical and Locally Attuned Perspective and
Factor 5- Engaged and Disengaged Perspectives

Participants' selection of statements identified what it was that they found inhibiting in an involvement process, and what they thought the process needed (see Section 5.3.1). Essentially Factor 1, knowledgeable perspective people, thought the process should be seen to be honest. They had confidence, time and a motivating interest to get involved. They thought the process needed well thought out and trustworthy information. The provision of quality information, was therefore important to this

group, and possibly explains their higher knowledge scores. Factor 2, political perspective people, recognised a problem with the funding of coastal defences. They thought political and trust issues needed addressing and they had a preference for more formal channels for involvement: for example using local government, parish and district councils. Factor 3, sceptical and pragmatic perspective people, needed to have issues of solving problems with trust and honesty addressed. Some preferred more practical ways of getting involved. Suggestions were flood emergency planning and response. Factor 4, sceptical and locally attuned people needed to have ways of finding information locally and a preference for getting information by word of mouth. They had issues with not trusting politicians. Factor 5, the engaged and disengaged perspective, needed more political and formal involvement for the engaged people. The disengaged perspective people had a personal interest in the coast and preferred an organisation to represent them, like the Alde and Ore Association. The main Factor characteristics and findings can be found in Table 5.32.

The Factor groups also demonstrated variations in people with different levels of knowledge and involvement, as determined by the questionnaire. Of the five identified perspectives (see Table 5.32 for a summary of the perspectives), low levels of knowledge were not found in people who loaded on Factor 1 and Factor 5. People with low knowledge loaded on Factors 2, 3 and 4. From this distribution it could be concluded that people with lower levels of knowledge may need political routes, for example through parish councils; pragmatic routes, possibly by practical involvement in projects like emergency flood planning; and local routes through other information and learning sites like village services, for example the local shop and garage. Other interesting observations from the Q analysis were that solely males loaded on the practically orientated Factor 3 and solely females loaded on the locally attuned Factor 4. The younger participants also loaded on Factors 3 and 4. These gender and age preferences are not conclusive from this sample, but could form the basis of further research.

One outcome of interviews and discourse analysis was a list of methods preferred by different Perspective groups and individuals (see Tables 5.3.2, 5.3.4 and discussion in Section 5.4.5). Differentiation was made between more ‘formal’ methods of

involvement, which were mostly by organisational design (Rank 2008) and those that needed further consideration and were more 'informal' and network orientated (Lesser and Prusak 1999). Planning for flood management strategies needs to consider both formal and informal means of engagement if it is to effectively engage with a whole population.

6.3 Critique of the Research

Considerable efforts were made to engage with as many different sectors of the population of Orford as possible. The initial sample was of the whole village with a population of 659 people and 432 dwellings. Questionnaires were delivered to every household, with collections a week after distribution (see Section 4.3.2 for a description of the method used). However, there were problems with engagement with certain age sectors of the population and other hard to reach people. People in the 21-40 age range, were the hardest age group to contact for their views and initially to get to complete the questionnaire. Not having time to engage with flood management was an important issue identified by the workshop participants and may explain why this age group particularly had difficulties with involvement. One reason cited was the time needed to bring up a family (as discussed in Section 5.5.1). How to access people in this sector of the population is always going to be difficult. There is no easy solution, other than as to spread information as widely as possible and find ways to target this sector of the population, where they live, work and socialise can make many varied opportunities for participation possible.

Other hard to reach areas of the population in this research proved to be those represented by the group that produced the alternative to the parish magazine 'The Voice from the Top' described in Section 5.4.4. Essentially it is a publication of a cynical, but witty response to village news and affairs. The authors represent the part of the village where many 'locals' live. That is, the area of few incomers, retirees and second home-owners. This is also above the potential flood risk area, hence the voice from the top. When returning to collect questionnaires from the paper shop, garage or door to door approach, there were low returns and few with contact details from these areas of the village. The engagement with members of this group of 'locals', was mostly through personal contacts and persuasion. Often a contact was made who disseminated questionnaires to their friends and relatives, or groups they

belonged to. This method will be difficult for agencies and local government, but if the views of a whole population are sought, then more personal approaches should to be considered. Finding a conduit into the members of a local population that are not usually involved can be achieved effectively if key people in local networks are identified and persuaded to use their network of contacts to disseminate information (see Section 5.4.5). This approach was used in this research and resulted in ten out of the seventeen low knowledge and involvement residents responding to the questionnaire. Personal contacts and improved access to contacts is also one of the recommendations for improved participation (see Table 5.36 and Section 5.4.3).

In all the methodologies used, numbers were relatively small. However if consensus is achieved amongst groups of people there is justification for drawing conclusions for that group of people. The aim of the research was to suggest ways to improve public participation in flood management in an area. Therefore identifying the views of different groups has been a valid way to proceed if insights into the preferences of those groups could improve their involvement. That is:
"Who prefers particular kinds of processes and outcomes in which contexts, as well as how individual preferences may vary by context and how preferences for process may be related to preferences for and satisfaction with outcomes".
(Webler and Tuler 2006, p 719).

A case study approach was selected because villagers were potentially affected by flooding and many had recent experience of the near overtopping of the river walls surrounding the village in 2007, just prior to the time of the research. Many also had experience of flood strategy consultations by the Environment Agency. 25% and 31% respectively of the respondents to the questionnaire had been to two Environment Agency Flood strategy meetings in the town hall (see Table 5.1). There are other villages and towns along the Suffolk coastline where comparisons could have been used, such as Aldeburgh or Southwold (see Figure A1) or indeed in other parts of the country, including the North Norfolk coast, Essex coast or a contrasting area, such as the Northumberland. Some of these areas have had similar problems with coastal strategy rejections (see Section 3.4.4). However it was individual responses that were sought and an analysis of the groups that local people belonged to, that could be the same in any small settlement or community. Therefore the

methodology used in this research could be transposed to other locations for comparative purposes, to investigate levels of knowledge and involvement, and to identify barriers and enabling methods to improve public participation in flood management.

In the duration of the research there has been a change in government, from a Labour government to a coalition of Conservatives and Liberal Democrats. The effects of this change could be seen as two fold. Firstly, the funding of flood management has changed from what was a priority funding calculation, where funding was not available unless certain criteria were met, to one where funding may be possible if local sources of money can found as described in Section 2.5 and Section 3.4.1. Rural areas, such as the Suffolk coast were particularly vulnerable to lack of funding. There were views expressed in 2009 by local people in Orford, when statements were being selected for analysis by local people for the Q analysis that *'Central government is facing severe cash problems. East Suffolk does not return Labour MPs, so they will not spend money here'* and *'The Environment Agency doesn't feel that the small number of people involved are worth the billions that it is going to cost to save the coastline'* (see Section 5.3.1) Suffolk's rural coastline is now said to have more opportunities for flood management projects to go ahead because of more diverse funding sources, such as from local communities (see Table 3.7). This change in funding is more in tune with the present government's stance on 'Localism' by encouraging participation at local level (see Section 1.3.1), possibly to increase contributions. The fact that local people are being asked (expected to) contribute to funding local flood management projects makes it even more important that they are involved in the decision making for these projects.

Increased emphasis on Localism in Government policy can highlight local changes. Government policy is going to change over time and as with other changes it will depend how local people react and adjust to that change. Observations of reactions to changes in flood management, was a key initiator for this research (Chapter 1). Innovative flood management strategies have been observed during the nine-year time scale of the research, as well as an increasing willingness to get local people involved (Chapter 3). Addressing improved participation and why local people do and do not become involved has been the main aim of this research.

It has been difficult to directly address views about flood management with some of the research sample, because many of the villagers of Orford would not have been involved in plans for coastal flood management. However, some villagers were and through their responses to the different methods in the research, it has been possible to identify issues that they would have, and then to ask views about these issues from those people who would not.

Use of Q Methodology has also been considered a contentious method by researchers who do not favour a mixed method approach because it is a hybrid of quantitative and qualitative techniques (see Sections 4.2 and 4.6). The main advantage of Q methodology in this research is that it allowed for an analysis of subjectivity in people's views about involvement in flood management. Issues would be difficult to analyse if just using interview responses, although this was also carried out. The Q process allowed for people to be reflective and more involved in the research process. 50% of the people surveyed had taken part in pre-Q and post-Q interviews

6.4 Future research direction

The integrated 'Futures' project (see Section 3.5.3), involving Suffolk Coastal District Council and the Environment Agency has used some of the methods reported on in this research. The organisers of the project, Bill Parker from Suffolk Coastal District Council and Sharon Bleese from the Environment Agency, are to have further meetings to discuss the outcomes of this research. The aim of the meeting is to assimilate some of the ideas into their practices, and review the 'Futures' project.

Meetings in the 'Futures' project directly asked people for their views. In this research views were sought to establish a generic list for the issues people may have with participation in flood management (see Section 6.2). The response rate of people consulted in the Future's project 'conversation' about flood management and other local issues in the Futures project was approximately 700 (9%) of local people spoken to, and 300 (4%) of local people who returned written responses. It would be

very useful to assess the success of the engagement of this project by measuring the awareness of the local population of the project, and how the issues identified in this research had been addressed.

The main outcome of the 'Futures' project in 2012 has been to reform the Estuary Partnership of the Alde and Ore (EPP) to form an estuary plan. Planning and actions are now the responsibility of the Alde and Ore Estuary Planning Partnership (AOEP). The change has established a new governance model. The effectiveness of this new model in its inclusion of the local population would make a useful contribution to a further understanding of ways to engage more of the local population in flood management deliberations. This governance model has developed what appears to be, a more formal model, with a role given to the Alde and Ore Association, for flood planning for the estuary. It is an interesting case study in relationship building with the Environment Agency, which is still developing. Recent involvement of the local population has been an exhibition of memories of the 1953 flood that included a professionally made film of the flood, mostly using the input of local people. A film was a favoured method identified in the workshop (See Table 5.35).

The approach of the 'Futures' project has been different to that of the Deben Estuary Partnership described below. The 'Futures' project has consulted with local people to identify issues for an estuary plan then assigned actions on the outcomes to the newly formed formation AOEP. The Deben Estuary Partnership is engaging stakeholders and the public to contribute to the making of an estuary plan. A comparison of the plans of the AOEP and DEP, while they are being formulated could also provide more insights into different approaches to involve more of the public in flood management.

The Deben Estuary Partnership (DEP) (see Section 3.5.1) in the Suffolk Coastal District Area of Suffolk in 2012/13, is also engaging local people in flood management issues, and trying to establish their priorities to form an EA and 'People of the Estuary' joint management plan from the bottom up. The researcher is engaged in work with this Partnership that hopes to get local people involved in a plan for their estuary which includes addressing flood risk from the River Deben.

Methods are developing but involvement is essentially through parish councils, environmental, access, and business groups, with extensive out reach for information and feedback from all community groups and age groups. Engagement with local young people through an e-survey and site visits to local sailing clubs where courses are being held, has been carried out by the researcher. The major concern of both the DEP and especially the EA is that the final Plan is as inclusive of the views of the local population as possible. The EA is trying to avoid an adverse reaction, like that described in the introduction that began this research. The improved involvement of parish councils in flood risk management to aid engagement of more of the local population has been a proposal also identified in this research (see Section 5.4.3 and 5.6). The project is using an engagement model of returning to villages following initial engagement for further feedback and planning sessions, (two have been carried out in early 2013 a further one is planned in the autumn of 2013). The effectiveness of this initiative would also add to the understanding of the difficulties involving local populations and add to solution ideas.

Inclusivity, and thereby improved public participation, is not an easy issue to solve. The challenge is going to be to successfully integrate the plan for flood management in the estuary in two directions: from the community, to be as inclusive as possible by involving all those who can have and be seen to have an interest in having an input in the Estuary Plan; and satisfying the statutory demands of the organisations and agencies involved. The success of the project very much depends on relationship building between the Environment Agency, local government (the district and parish councils) and the community group.

One of the main ways to manage coastal flood planning, as well as other aspects of planning along the coast that can be affected by flooding is the process of Integrated Coastal Zone Management (ICZM) (see Sections 3.2.2 and 3.5.3). It has been reported that this process with its introduction in 1999 from an EU Recommendation has made slow progress (Defra 2010). The main approach of national government from 2010 until 2013, is: promoting consultation through the new Marine Management Organisation (MMO) which mostly affects offshore planning and licensing in estuaries (see Section 3.3.3); using Coastal Partnerships, but with little direct support (see Section 3.5.1); and promoting exemplars of good practice ,in

Government sponsored Pathfinder Projects (see Section 3.2.2). MMO consultation is not thought to include the involvement of many members of the public. The influence of MMO and the Pathfinder projects have had little impact on the participation in flood management of the local population of Orford at the time of the research. The main drivers observed in the area for ICZM have been: Suffolk Coastal District Council from 2008 with an appointment of an Integrated Coastal Zone officer (See Section 3.5.3); increasingly the Environment Agency with their involvement in projects with the AOEP and DEP; and Suffolk County Council in 2012 with support for the development of a Coastal Forum for flood management and planning for the Suffolk coast. There are therefore growing initiatives to promote ICZM. However, none of which really engages with the public directly. It has yet to be seen if new proposals in 2013 by the EU, for a Directive to encourage more integration in coastal planning, will improve ICZM.

The DEP Project would appear to be the strategy that is making most effort to include the public locally in its deliberations, and potentially achieve ICZM in Suffolk. There is still need for research to assess the effectiveness of its strategy, which has been said to be an innovative one by the Environment Agency Area Project Manager (Simon Allam 2012). The EA is not undertaking any other similar relationships to his knowledge. The strategy will not be finalised until 2014. As stated, it could provide useful insights into improved public participation if this strategy was also analysed using the issue criteria identified by this research. The issue of trust in information provided by different sources and delays has proved a difficulty with this process (see Issue 1 and 12 (ii), in Section 6.2).

At the outset, and throughout this research, it has been recognised that coastal flood management is a complex issue. A major conclusion of this research has been the identification of issues that inhibit inclusion by some people in flood management. Researching the preferences of people with different levels of knowledge and involvement and perspectives on flood management has suggested methods that they would recommend or prefer for engagement in flood management. If these issues and preferences can be taken into account when planning the involvement of the public in flood management there could be more satisfaction with outcomes and less opportunities for failure to adopt flood policies and plans.

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Appendix 1 Questionnaire and mark allocation

Orford Quay 2007

Information for you about the survey.

My name is Jacquie Smith, I can be contacted for information about the survey on, telephone number 01728 746420, or e-mail Jacqueline.smith@uea.ac.uk. I am a mature student at the University of East Anglia studying for a PhD in flood management along the Suffolk coast. I want to find out what you know about the causes of flooding in the Orford area and what involvement (if any) you have in the management of flooding in the area. Any information you give me is strictly confidential, your responses will not be individually identified. Answering the questions should take you about 20 minutes to complete. There are no right or wrong answers to the questions, just note what you think.

Question 1 ***(0 marks. Question used as an introductory question)***

What changes around Orford do you think are important or not important to you?
Please tick one square for each change.

Change:	Very Important	Quite important	Neutral	Not very important	Very important
New Building	☐	☐	☐	☐	☐
Preserving old buildings	☐	☐	☐	☐	☐
Less farming	☐	☐	☐	☐	☐
More farming	☐	☐	☐	☐	☐
More nature reserves	☐	☐	☐	☐	☐
Loss of access to the coast	☐	☐	☐	☐	☐
Loss of access to the river	☐	☐	☐	☐	☐
Increased flooding	☐	☐	☐	☐	☐

Question 2.*(Up to 3 involvement marks for a group involved with flood risk)*
Do you belong to any groups in Orford or surrounding area? ***Please state which.***

_____
_____
_____
_____

Question 3*(1 mark for knowledge)*
Do you think your group could be affected by flooding in Orford or surrounding area, and in what way. ***Please write your answer in the space provided below.***

_____
____
_____
_____
_____
_____

Question 4 ***(1 mark for knowledge)***
Do you think the SuffolkCoast is going to have less, the same, or more floods from the sea in future? ***Please circle which you think***.

Less the same more don't know

Question 5.*(Up to 9 marks for knowledge)*
What do you think causes flooding along the SuffolkCoast?
Tick all that you think apply.

Effect	**Tick here please**
Sea level rise	
Melting polar ice and glaciers	
Increase in storms	
Tidal surge	
Off shore winds	
On shore winds	
High waves	
Land subsiding from east to west in UK	
Decrease in sand and shingle on beaches	
Increase in sand and shingle on beaches	
Loss of sea defences	
Increased rainfall	

Question 6 ***(1 mark for knowledge)***
Is there anything else that you think might cause flooding along the Suffolk coast? ***If yes, explain below.***

_____
_____
_____
_____
_____

Question 7.*(Up to 9 marks for knowledge)*
If sea level rise causes more flooding, which of these local land uses do you think would increase, decrease, or remain the same?

Please tick which applies in each case.

Land Use	increase	the same	decrease	don't know
Salt Marsh				
Mud flat				
Reed bed				
Beach				
Farming land				
Grazing marsh				
Salty lagoons				
Sand dunes				
Houses				
Coastal footpaths				

Question 8.*(Up to 7 marks for knowledge)*
Who do you think is responsible for managing flood defences around Orford?
Tick as many you think are responsible, not responsible, or you are not sure.

	Responsible	Not responsible	Not sure
New OrfordTown Trust			
Orford Parish Council			
Suffolk Coastal District Council			
Suffolk County Council			
The Environment Agency			
Defra (Department for environment, food and rural affairs)			
Farmers and Landowners			
RSPB			
English Heritage			
The National Trust			
SuffolkCoast and Heaths Unit (AONB Area of Outstanding Natural Beauty)			
The Estuary Planning Partnership of the Alde and Ore			
The Alde and Ore Association			
Regional Flood Defence Committees			
GO East (Government Office for the East of England			
EERA (East of England Rural Assembly)			
EEDA (East of England Development Agency)			

Question 9. *(1 mark for knowledge)*
Who do you think is most responsible?

Question 10.*(Up to 3 marks for involvement in attending meetings, 1 for each)*
Have you heard of any of these plans or been to a meeting about them?
Please circle the appropriate answer in each column

Heard of this plan.			**Been to a meeting.**	
Shoreline Management Plan SMP2	YES	NO	YES	NO
Land Use Plan from Suffolk Coastal District Council	YES	NO	YES	NO
Environment Agency Estuarine Management Plan	YES	NO	YES	NO
Environment Agency Coastal Management Plan	YES	NO	YES	NO
River basin Management Plan	YES	NO	YES	NO
Coastal Habitats Management Plan	YES	NO	YES	NO

Question 11.*(Up to 3 marks for involvement in attending meetings, 1 for each)*
Have you attended any meeting about flood management? (***Please tick all that apply***).
What type of meeting would you prefer? (***Please tick all that apply***)

Meeting type	**Attended**	**Preferred meeting type**
Exhibition in OrfordTown Hall		
Public meeting		
Stakeholder interest group meeting		
Surgery (like MPs, one to one)		
Workshops (Group Discussion)		
Parish Council Meeting		
A panel of experts(to ask question)		
As part of a citizens panel(to hear evidence and judge the best way forward in flood planning)		
None		

Question12.*(1 mark for involvement)*

Is there any way in which you would like to become involved in flood planning?

Question 13. *(Up to 2 marks for knowledge)*

In planning for flood management there are usually three options:

1. **Hold the Line**. Which means work will be carried out to keep the existing line of flood defences. Defences should be kept the same or improved.
2. **Managed Realignment**. Which means flood defences move inland behind existing ones. This can allow for new habitats like salt marsh
3. **No Active Intervention**. Where flood defences are not maintained, meaning land behind will flood.

Which of the above options would you prefer to see along the coast at Orford?

_____
____

What are the reason(s) for you choice?

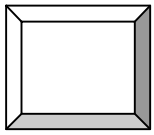
_____
_____
_____
_____
_____
_____

Information about you for me.

Name: _____
Main Address: _____
_____
_____
E-mail: _____
Male/Female _____
Occupation _____

Age: under 20____ 21-40____ 41-60____ over 60____

Thank you for taking part in this survey. I will collect this questionnaire at the same time next week.If you are willing to be interviewed for the next stage of the research please tick the box below.



Appendix 2 Examples from Nvivo analysis and coding of pre Q interviews, for the concourse of statements.

Free Nodes allow for selection of parts of dialogue to be constructed into types of statements. There were equal amounts of dialogue for each type of issue

Free Nodes

" Attitude to involvement Issues 15	44	28/04/2009
" Consultation and Participation Issues 12	39	28/04/2009
" Govemance Issues 13	39	28/04/2009
" Information Issues 13	40	28/04/2009

Statements can then be identified from dialogue in the free nodes selections. An example of the dialogue is copied below. Statements were selected from dialogue, an example is highlighted in red.

Internals\Anna Cornford·Interview·17. 3.2009 references coded·[7.97coverage]

Reference 1 – 5.37% Coverage

J Have you heard of an organisation called the Environment Agency
A *Yes*
J What do you know about them
A Really that they are responsible for the environment and I suppose green issues I would assume, recycling and that kind of thing,
J They have had meetings and exhibitions in the town hall you wouldn't go to any of those meetings? (Referred to questionnaire)
A No. I am busy doing other things

Reference 2 – 2.60% Coverage

A Just that I have never really thought 'about it I suppose. We are used to being in our own little bubble, or I would send James, he is quite obviously very interested in all that kind of thing

Intemals\Charmain Baker Inteview~ §.2 references -coded~[3:46% Coverage]

Reference 1 2.06% Coverage

C Our quay is falling down we had to pay for it everyone has paid a bit the fishermen have helped and done their bit
Reference' 2 -: 1:40%-Coverage
J What motivates you to go the meetings?
C It is my home I want to protect it

Intemals\ElisabethCooper.....; § '10·references coded (13·.12%

E There are people who don't want to get involved because they are shy and there are people who think everyone else is going to be a toff and so on

Appendix 3

Example of Factor 3 statistical factor analysis from the PQ Method computer programme to define Factors and Perspectives (reconstructed table with abbreviated statements)

Normalized Factor Scores -- For Factor 3

No.	Statement	No.	Z-SCORE
3	3. If it was a practical situation then yes I would get involved	3	2.126
38	38.Scientists make a fuss because need more funding.	38	2.126
13	13 Consultation works if there is honesty.	13	1.315
35	35.The Alde and Ore Assoc. Informs about flood management	35	1.302
12	12.People are cynical politicians have a hidden agenda.	12	0.988
25	25.I am told in EA want to do a good job.	25	0.960
20	20.Local people involved in FM should be invited debrief	20	0.933
32	32.CentralGov not fund due to no labour MPs	32	0.891
21	21.People are keen at beginning, now cynicism, zero happened	21	0.671
18	18.If they made up their minds no choice waste of time	18	0.658
36	36.Difficult to trust people if not admit uncertainty	36	0.658
22	22.People ought to write and protest more.	22	0.616
7	7. I get involved through interests farming sailing wildlife	7	0.564
19	19.Drop ins in the Town hall are better than meetings.	19	0.509
1	1. I am busy doing other things.	1	0.424
15	15.The EA thinks consultation is * an doing it better.	15	0.383
2	2. I would join an organisation like the Alde Ore Assoc.	2	0.276
30	30.get info. From noticing local things like flood line	30	0.204
40	40.I would get information from the internet.	40	0.149
31	31.Info about flood management from local people.	31	0.135
39	39.Info about FM should be less uncomplicated, easy read.	39	0.083
14	14.I would listen to someone normal using the river the same	14	0.056
5	5. There are many surveys and suggestions but nothing actual	5	0.000
29	29.The Alde and Ore Assoc. * pressure group	29	-0.124
28	28.We need to talk to the local councillors more	28	-0.247
37	37.I would trust the EA not to tell lies.	37	-0.260
9	9. I would rather leave it to people who know more about it	9	-0.397
26	26.The EA not got money for small no. people on coast.	26	-0.453
24	24.The EA not expertise to get across to local people.	24	-0.671
16	16.We need an Org to rep us when not agree what going on.	16	-0.686
23	23.When it community people help each other, not need write	23	-0.878
17	17.People do not want the EA knocking on their doors	17	-0.934
10	10.The way for people to get involved is to phone write DC	10	-0.960
4	4. Meetings are boring.	4	-1.069
27	27.local councils should be main agent for sea defences.	27	-1.095
11	11.Finding out by word of mouth like to village shop is import	11	-1.426
6	6. I think my opinion will not make a difference	6	-1.521
8	8. I don't think flooding will happen in my lifetime.	8	-1.591
34	34.People do not believe in slr and not accept doing damage.	34	-1.646
33	33.Some exhibitions difficult because too technical.	33	-2.071

PQMethod2.11 People Q sorts PAGE 13
Path and Project Name: C:\PQMETHOD\PROJECTS/OXFORD

Appendix 4 Instructions for postal Q sort.

Survey about Flooding around Orford.

Orford Quay, November 2007.

Dear Participant,

You very kindly completed a questionnaire about flooding in Orford for me last year. I am extending my PhD research work following analysis of the questionnaires, and interviewing, to look into the causes of involvement in flood management. You will be invited to a meeting in the Town Hall to follow up the findings, should you wish to attend.
Would you please further participate in the research by carrying out the following exercise. All you have to do is put into a grid your feelings about participation in flood management.

Instructions for completing the grid. (You will need a table top or similar area)

1. Open out the large folded grid in the pack.
2. Undo the cards, spread them out, and read them.
3. Decide which 2 statements you most agree with, put these under the +4 area of the grid
4. Decide which 2 statements you least agree with put these under the -4 area of the grid
5. Pick the next three statements you most agree with and place under +3
6. Pick the next three statements you disagree with and place them under -3
7. Pick a further 5 statements for under +3, and further 5 statements for -3
8. Place a further 6 statements under +1 and -1
9. The rest of the statements you should feel fairly neutral about and place then under 0.
   There will be 8 left of these.

If you want to change the position of any of the cards please do so until you are mostly happy with where you have put them.
10. Turn over the cards and place the numbers in the grid on the A4 sheet.

PLEASE RETURN THE PACK TO ME IN THE ENVELOPE PROVIDED. Phone 01728 746420 or e mail for more information Jacqueline.smith11@btopenworld.com

Appendix 5 Examples from the 3 stages of coding for post Q interviews.
Examples of coding from follow-up interviews- rough working

Stage 1 Analysis of follow up statements.

The initial coding with attributing Factors
Follow-up Interviews coding: (Right hand side of statements)

Information Issues		
lk	lack of knowledge	(All except F2)
r	risk recognised	(All)
h/t	honesty	(All)
ti	trust in information	(F3 and F4)
ai	appropriate information for the audience/receiver	(F1; F3 and F4)
Community issues		
co	community divides	(All)
Responsible and Representative Issues		
po	political responses to PC, DC, Gov, EA	(F2, F4 and F5)
ao	Alde and Ore Association	(All except F4)
Personal issues		
pi	personal interest	
ap	apathy recognised	(F1, F4 and -F5)
t	have time (not too busy)	(F1 and F2)
c	confidence (opinion can make a difference/ or not)	(F1, F3 and F5)
p	practical/or not	(F2 and F3)
Policy Issues		
d	decision input	(All except F3)
f	funding	(F2 and F5)
nd	nothing done and delays	(F4 and F5)
sol	solutions (not methods)	(F1, F2 and f5)
lcr	lack of perceived competence and realism	(F3)

Stage 2 (i) Fine coding of the follow up interview statements.

Initial coding with attributing factors
(Attributing Factor perspective allocation includes follow up statements and Q sort statement selection).

Follow-up Interviews Coding:

Code	**Explanation of code**	**Perspective**	
Issue			
lk	lack of knowledge	(All except F2)	3
r	risk recognised	(All)	3
h/t	honesty	(All)	1
ti	trust in information	(All mostly F3)	1
ai	appropriate information for the audience/receiver	(F1; F3 and F4)	4
co	community conflict	(All)	7
po	political responses to		
	PC,	(All)	9
	DC,	(F2 andF5)	12
	Government,	(F2, F4 and F5)	12

	EA	(F1, F2, F3 and F5)	12
ao	Alde and Ore Association	(All except F4)	8
pi	personal interest	(F1, F4 and F5)	2
ap	apathy recognised (not make time)	(All)	5
t	have time (not too busy)	(F1, F2 and F5)	5
c	confidence (opinion can make a difference/ or not)	(All)	6
p	practical / or not	(F2 F3 and F4)	11
d	decision input	(F2 and F5)	12
f	funding	(All except F4)	10
nd	nothing done and delays	(F1,F4 and F5)	12
sol	solutions (not methods)	(All)	12
lcr	lack of perceived competence and realism	(F1,F3 and F4)	12

Once the fine coding was felt to be complete an identification of the issues to involvement was carried out. This initially identified twelve aspects of problems with flood management involvement. The twelve issues 1-12 applied to the statements are:

Issue 1. A perceived lack of **honesty in organisation**
Issue 2. Not having a **personal interest**
Issue 3 .Little **flood risk knowledge and awareness**
Issue 4. Lack of **trustworthy and accessible information**
Issue 5. No **time** given and **apathy** due to not making time
Issue 6. A lack of personal **confidence** to get involved in flood management issues
Issue 7. Divides in the local **community** causing conflict
Issue 8. Not belonging to the **Alde and Ore Association**
Issue 9. The effectiveness of **parish councils** and not using them
Issue 10. Lack of **funding** for flood defences
Issue 11. Opportunities for **practical** involvement
Issue 12. Problems with the **process of flood management** carried out by the EA

Stage 3 Coding Example
Checking for contributing statements to the current twelve identified issue areas:

Knowledge / Information Issues

lk– lack of knowledge

- A lack of knowledge stops people from becoming involved (F1)
- A problem in this village is that not many people know about flooding (F3)
- People make their opinion known without knowing the facts (F3)
- We (young people in the village) are not asked to meetings and do not know about them (F4)
- If local fisherman have no knowledge about flood management they need to seek
  advice (F4)

- I know nothing about the role of councillors (F5)

r – a degree of flood risk recognised

- Flooding will happen in my lifetime (F1)
- I don't think flooding will be significant but we have got to protect Orford and the whole coastline (F1)
- Locals feel that flooding is an important issue (F2)
- Land will be lost to flooding (F2)
- Flooding from the sea will occur with a strong tide because of the nature of the river (F2)
- Flood risk is not as bad as they make out (F3)
- The river walls should be raised properly to defend them (F3)
- Raising awareness about flooding is important (F3)
- The estimation of a 2m rise in sea level is an exaggeration of the threat (F3)
- Flooding will happen in Orford, not regularly but the quay floods with high water and a surge (F4)
- People are not aware of flooding. I have no conversations in the pub or debates about what is going on in flooding (F4)
- Grandmothers house is in a flood risk area of Orford (F4)
- Defences will hold, Orford is well protected (F5)
- The risk of dangerous flooding is miniscule (F5)
- I can handle risk to my property (F5)
- I am uninsurable but I do not lose any sleep over it (F5)
- I am not worried about flooding because it will not happen in my lifetime. (F5)
- What happens (possibly flooding) affects what is important at different times.(F5)

h/t – honesty and trust in responsible organisations.

- There is a need to see honesty in consultations and decisions (F1)
- The Alde and Ore Association are perceived as 'posh' (F1)
- I do not trust politicians they are only out for themselves, although I trust the current government more (F3)
- The Environment Agency needs to be more environmental (F4)
- Politicians are not trusted to make the right decisions. People are cynical of politicians (F4)
- People do not trust big government. Locally I do not know. (F4)
- My Grandmother sent a letter to John Gummer but there was no reply (F4)
- I do not trust politicians they do not do anything for you (F4)
- Parish Council members are self interested (F4)
- Trust is improved with face to face communication (F5)
- More EA people need to be based locally (F5)
- EA personal involvement helps with empathy with locals (F5)
- People trust the local EA representative (F5)

(more a concern for F4)

p – practical responses

- Exhibitions raise awareness and we can get information from them (F3)
- I like to see evidence with my own eyes (F3)
- If it was a practical situation and flooding was actually happening, then yes I would get involved (F3)
- Some people want the opportunity to be more pro-active (F4)

(More from a F3 perspective?)

f –funding

- Central Government has severe cash problems. (F2)
- The EA does not feel the small number of people involved is worth the millions that it is going to cost to save the coastline (F2)
- Well it is going to be no action because there is no money (F1)
- Money is tight so not much is expected from central government (F3)
- The EU could be an alternative for funding (F5)
- The EA does not spend money here, we have not got a big enough voice to make a fuss. (F5)
- Consultation is put out to tender, much money is wasted on consultation (F5)
- A problem in the past was that options were not costed, and the EA lost credibility (F5)
- Political pressure needs to be exerted to get the money (F5)
- The government spending revue has made the situation worse, but the EA is making a good effort (F5)
- In retrospect (since 2004) there was an opportunity to do more at the beginning. Costs were less and there were different rules (F5)
- The EA and local people are working together to fund river defences (F5)

Appendix 6 Invitation to the Workshop

Invitation

To a workshop to help improve public participation in flood management in the village.

Dear

Please come to Orford Town Hall (Committee Room) on
Saturday 14th May 10.30 for coffee for an 11.am start
Until 2.30pm to include lunch and two short interactive workshops.

The workshop involves two exercises about problems you have identified regarding public involvement in flood management. Lunch is my thank you to all of you for your help with my PhD. I hope you will come.

Best wishes and thanks,
Jacquie

RSVP to Jacquie Smith.

Tel: 01728 746420
e-mail: Jacqueline.smith11@btinternet.com
Address: Lavender Villa, Mill Lane, Campsea Ashe, Woodbridge, Suffolk. IP13 0PG.

Appendix 7. Examples of Issue cards with descriptions from interview text for the workshop

Workshop Issue Cards

Lack of trust in organisations

For example: Taking the Environment Agency as the main responsible organisation for flood management, lack of trust in them can cause less involvement because:

They are not trusted to have a local interest and experience and address this in their policies and have good trusted people putt ing over flood management ideas.

Lack of knowledge and awareness of flood risk

Lack of knowledge about flood risk could stop people becoming in volved because for example:

- They think flood risk is not as bad as 'they ' make out
- Sea Level Rise is exaggerated
- There is no discussion in the village about flood risk
- Some local people are not worried about flooding because it wil l not happen in their lifetime

No time and apathy

No time to get involved can be a barrier to involvement for exam ple because:

- People sit back, let things happen and are complacent
- It is difficult to make time because of bringing up children
- This is just where they live and there is not much they want to be involved with.

Not feeling part of the community

For example:

You feel there is no-one to represent you.

The part of the community you may feel you belong to is not included in decisions

Some people do not know where to go to for information about flood management issues.

Lack of interest in the sea or river

Little interest can cause lack of involvement for example:

- People only find out when it affects them
- No one asks local people what their interests are
- There are conflicting things that people want

Lack of trustworthy and accessible information

The
- quality,
- appropriateness for different people
- and way information is distributed

could cause barriers to involvement

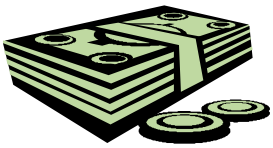
Lacking in Confidence

People do not get involved because;

They think their opinion will not make a difference

They do not feel listened to

Lack of funding



makes involvement less likely for example because

- Money is seen to be tight, so not much is expected from Central Government.
- Political pressure needs to be exerted to get more money
- Cheaper solutions are needed an
- Money is wasted on consultants

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