



*Living with Flood Risk
in a Changing Climate*

FLOWs report WP2A - 3

Qualitative studies of the public's comprehension of flood risk

Case studies from UK and Norway

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Case studies from the UK and Norway

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Contents

1	About the study	4
2	Summary of key findings in both countries	5
3	Basic views and attitudes towards flooding	6
4	Positive aspects of floods	7
5	Rational thoughts about floods.....	7
6	Emotional thoughts about floods	8
7	Conception of 100-year floods	9
8	Concerning relocation – and why they stay.....	9
9	Information.....	10
10	Conclusion.....	11
Appendix 1: Rosslyn Research: FLOWS focus groups - flood risk perceptions, inland East Anglia.....		
Appendix 2: TNS Gallup: Qualitative study – “Flood”		

1 About the study

The purpose of this study is to get feedback from residents living in areas exposed to floods, about their feelings, fears, views and attitudes towards living in such an area. The study has been part of the FLOWS project WP2A, and is a qualitative follow-up of a larger quantitative study on the same subject, carried out in several European countries in connection with the project.

Conducting focus groups is a qualitative analysis method that attempts to bring forward the most possible number of views from a group. It provides knowledge and understanding as opposed to measuring quotas. Because of this it gives insight in how people think and why, but not to what extent the different views are shared by others.

Two focus groups have been carried out in Norway two in England. In both studies we made sure that:

- The respondents were randomly picked from those who have property and/or live in an area directly affected by flooding.
- A spread in age and sex has been preserved.
- The respondents were recruited from lists previously made in connection with the quantitative study.

In the UK Rosslyn Research Ltd was commissioned to organise and run two focus group discussions with residents of the counties of Cambridgeshire, Lincolnshire, Norfolk and Northamptonshire, on the subject of expectations and experiences of fluvial flooding and flood risk. The groups were gathered in June 2004.

In Norway the job was carried out by TNS Gallup and found place in June 2004. Two focus groups was carried out. One in Notodden and one in Åsnes/Flisa. The respondents are randomly picked from those who have property and/or live in an area directly affected by flooding.

The detailed reports from Norway and the UK are included here as appendixes 1 and 2.

2 Summary of key findings in both countries

The respondents in both of the Norwegian groups have personal experience of rather severe flooding incidents. Participants in the English groups have not experienced flooding as directly as the Norwegian groups, and for them the picture is somewhat different, but we do find that their basic conception and understanding of the risk doesn't differ that much from the Norwegians.

The English groups mainly consist of people who have not experienced severe flooding at first hand. One has a field that is a flood plain and is flooded regularly; one has had to leave his house for months after severe flooding. Others have had under floor flooding, which they found to be disruptive but not traumatic:

“It causes a bit of trouble because you have got to have floorboards up and leave them up for sometime until all the timber dries out underneath (UK)”

Many of those who have not experienced flooding have come very close:

“When we had a flood in Sawston the water came up to the doorstep but that was before they put the bypass in” (UK)

Also, many of these have intimate indirect experience of flooding, for example when an elderly parent has been flooded.

For all participants in the UK, at the very least it is an experience that they feel very close to even where they may not have been through it themselves. The floods of 2001, 1968 and above all 1953 are well-known in considerable anecdotal detail by absolutely all of the participants, whether they are from families that have lived in the region for generations or are more recently arrived.

For both countries the key findings can be summed up in these points:

- Some worry about material losses as well. This is however related to the process of getting insurance money, the fear of losing irreplaceable objects, the fear of losing one's economic basis, etc.
- One of the Norwegian groups is concerned about the quality of the emergency plans. They were found to be poorly organized in 1995.
- There is also a small fear of death or injury. This is primarily related to relief work and rescue operations. Based on experience from 1995 this work is perceived to be risky and dangerous.
- Moving to safer areas is seriously considered by some. But as of now, the emotional, economical and practical reasons to stay are stronger than the fear of flooding.
- Private preventive action is primarily agreements with insurance companies that the basement etc. is not to be used.

- They admit that there own emergency plans on how to cope with a new major flood could be better. (What should be saved first? Where to go? Etc.)
- One of the Norwegian groups is somewhat apathic and lacks faith in preventive efforts. They expect little or nothing from the authorities. “No-one can do anything”
- The power-companies have a responsibility to drain the water dams in time, but they are suspected of keeping the water level for profit reasons.
- In both countries the groups want information to be handled as local as possible. The Norwegians favour local radio and the British the parish.

3 Basic views and attitudes towards flooding

Flooding is considered a natural phenomenon that will return in intervals of a few decades.

A major flood is destructive. It is a natural disaster that destroys large values. Most respondents believe the danger of flooding has increased as a consequence of direct human interference in nature. When the natural course of a river is regulated, the masses of water will find new courses and push forward at new places.

They think the danger of flooding have increased with the global change of climate, and that weather and natural disasters is getting more and more extreme. Because of this they have realistic thoughts concerning the possible sizes of new floods

In Norway we made an interesting observation, of a form of “status” from being a victim of flooding. In Flisa all the respondents had been directly affected by the 1995 flooding. But two respondents was so badly hit that they had to completely rebuild their houses. In this context they talked down on the other respondents’ damages and frustrations.

Some of the same in Notodden, but there they distinguish between those that only have their crop land damaged, and those whose residences are hit.

- The basic attitude in both countries can be summed up like this: Flooding is unpredictable and incalculable. The combination of much rain and fast melting of snow cannot be predicted far ahead. This uncertainty enhances the psychological stress, and the fear of flood affects quality of life negatively. It causes anxiety and a feeling of powerlessness.

4 Positive aspects of floods

The groups don't find many positive aspects to flooding, but some point out that the flood brought the local community closer together. Facing a common threat and participating in rescue operations together was uniting.

They also conclude that flooding might have an educational effect. It provides experience in how to cope with crisis in the local community. After each major flood more efforts are made to be better prepared for the next.

5 Rational thoughts about floods

Every year the respondents fear a new flood. They pay close attention to changes in the surroundings that may signal a new flood. In a long term perspective they take notes of new lakes in the forest, changing water level in lakes, new courses of streams, marshes that get wetter etc. They interpret this as a consequence of direct human interference in the river systems:

"Water cannot be contained. If we stop it one place, it will burst out somewhere else" (NO)

"The landscape is changed and they 'forget' that it has been the course of a river for many years. They redirect it, but the water won't yield."(UK)

In both countries they keenly watch the daily water level in rivers and lakes:

It took about 2½ months to dry and then another 2 months to knock walls down... it was a huge operation. Ever since then I've become distinctly touchy about the rainfall, I keep a very close watch on the river. I know exactly how high it can go before I start getting worried...(UK)

"It gives you a completely different perspective on the weather because even after having a flood you spend a lot of time thinking about you know how many days has it been raining, what is the local river looking like "(UK)

However, all participants are also clear that the question of flood risk is floating to the surface, for themselves, their communities, and the country as a whole.

Often this awareness is couched in terms of rueful resignation and passivity:

"We live in Norfolk and it is all going to be under water soon..."(UK)

Global warming is the buzz word - I mean, it's like in hundreds of years' time the whole area will be under water. And so you know, where do you draw the line? Shall I move somewhere else? I could move to the Scottish Highlands; but, you know...(UK)

But this mood of resignation is counterbalanced by an equally prevalent opinion that this is a period of only temporary difficulty, that the mechanisms which kept flood risk at an acceptable level in the past (small farmers looking after their own interests, tight-knit communities acting in communal self-interest) need to be replaced with more abstract centrally-organised measures.

In general, participants saw their own attendance at these focus groups as one small manifestation of a larger movement - a mobilisation of communities, public institutions and individuals to address the reality of a more rapidly changing climate.

6 Emotional thoughts about floods

The respondents' rational thoughts about flood leads to emotional concern and fear. The fear is real, and it affects quality of life in both countries.

Faint-heartedness, desperation, and constant nervousness are three words that describe their fear.

Some say they react psychosomatic,

"get nauseas and sick because of it" (NO)

"There have been a lot of people that have suffered a lot of stress that have not been to work... (UK)

There is one person I know that has never worked since because of the stress that it caused him... (UK)

The negative feelings are related to the thought of all the extra trouble and work flood damage leads to.

Another basic feeling is that of powerlessness. They are innocent victims to forces of nature out of control. This feeling is stronger in Notodden. In Åsnes, perhaps building and enhancing flood barriers makes it feel that it indeed is possible to fight the river.

The only real countermeasure is moving, but everyone have practical, economical or emotional reasons for not doing this.

7 Conception of 100-year floods

The 100-year flood is thought to be an extraordinarily large flood. Beyond this there is little knowledge of a technical definition.

The concept creates the underlying attitude that one 100-year flood will not immediately follow another. You will get a few years or decades breathing space in between.

The mental image is that centenary floods historically come in ca. 30 year intervals. Intellectually they know that this is incorrect and it may come earlier, but emotionally it is still clear that they do not think the next 100-year flood will come in the next few years. 1987 (Notodden, Norway) and 1995 (Åsnes, Norway) is used as reference, and they therefore “think” the next major flood will come around the years 2020-2030.

8 Concerning relocation – and why they stay

Another basic feeling is that of powerlessness. They are innocent victims to forces of nature out of control. This feeling is stronger in Notodden. In Åsnes, perhaps building and enhancing flood barriers makes it feel that it indeed is possible to fight the river.

The only real countermeasure is moving, but everyone have practical, economical or emotional reasons for not doing this.

But one respondents (that had to completely rebuild her home in -95) say that she just cannot take another one:

-“If it floods again like in 1995, I move.” (NO)

There are some complaints about lack of information in connection with building or buying houses in exposed areas in both countries.

“When I was buying, I checked with “technical department”, but they did not tell me that the property was extra secured against flooding. I was shocked when I received my first bill for my share of the flood works. I would never have bought today if I knew.” (NO)

“I think it is strange that they give you a build permit on such a place” (NO)

“If you knew of anybody [who was thinking of moving to a risky spot] you would say “Hang on a minute, that’s a flood plain”. But now in towns in that you have got a lot of people, I mean obviously in Northampton it is a good place to live you can go to Milton Keynes or wherever. And so you get people coming up from these towns to buy a cheaper house and they don’t know and that is unfair...(UK)

The respondents expect little of the authorities. They see flood as a natural disaster that no one are really responsible of. In the UK, there seems to be more discussions around the flood zone maps and than in Norway.

“But it is still going to leave a problem at the end because there are going to be people who will not get insurance if that is the way they are going to use it. And so the question therefore is, is it better if it is up to people to accept the risk themselves or does the government see that it has a role in insuring them if no one else will...(UK)

This attitude shifts into a tendency of contempt of politicians (and bureaucracy) in both countries.

“It is no point in bringing this up. They do not listen to us anyway” (NO)

“There is a feeling that there are several groups of people that have an interest in flooding but there is not the feeling - I am not saying it is not the case but it is certainly not the impression at our level - that they necessarily talk to each other..”.(UK)

“We find that the people on the ground who actually work with us and the Environment Agency, the people who actually come and do the work, are absolutely top, they are fine. But the people at Whitehall or whatever haven’t a clue what is going on.” (UK)

9 Information

- In both countries the groups want information to be handled as local as possible. The Norwegians favour local radio and the British the parish. The Norwegians also ask for more general information about floods:

“We would like more general information about “Ground water floods”. What is the cause? Risk assessment? How high is the normal water level? “(NO)

“Parish Councils are represented mainly by people from their particular village and they would know the high ground, the escape routes, the sluice gates, everything. If that was written in a leaflet from the Parish Council to every resident in Whittlesford, Sawston, Hildersham, Linton and where to go in times of emergency and how you could help and this that and the other. It is smaller but more local.”(UK)

Those who live in an area exposed to flooding seem to know it. They do not need to be told. They know this mainly because of experiences from previous floods. On the other hand, those who have recently moved in, and have not experienced the last flood, could use more information.

10 Conclusion

We can conclude that using this qualitative method of focus groups was fruitful in both countries. In retrospect we have seen that the results gave us a good starting point for discussions in the local communities. The method also gave a seldom opportunity for individuals to express their views regarding flood mitigation to the authorities. In later discussions, we have also received comments from other communities that the results from our groups seem to be representative in other local communities as well. And last but not least, the results from the focus groups helped us interpret the results from the quantitative polls. These experiences have made us even more interested in using this method again in later studies on flood risk perception.

Appendix 1: Rosslyn Research: FLOWS focus groups - flood risk perceptions, inland East Anglia

Flows focus groups - flood risk perceptions, inland East Anglia

Introduction

In June 2004, as part of the FLOWS ("Flood Plain Land Use Optimising Workable Sustainability") project, Rosslyn Research Ltd was commissioned to organise and run two focus group discussions with residents of the counties of Cambridgeshire, Lincolnshire, Norfolk and Northamptonshire, on the subject of expectations and experiences of fluvial flooding and flood risk.

This focus group research followed on from a quantitative telephone survey of local residents, conducted by Rosslyn Research in 2003. In that survey, 800 people were interviewed, all of them living in postcode areas defined by the UK Environment Agency as being at risk of fluvial flooding. All participants in the focus groups were recruited from amongst the respondents to the earlier telephone survey.

Participants – 25 in all – came from all four counties involved in the project, and were reasonably representative of the local population in terms of age, sex and educational level. Care was taken to recruit people with varying experiences of flooding and attitudes towards it: roughly one third of the participants had experienced flooding to their home or land, one third described themselves as living in a high flood-risk area, and the remaining third described themselves as living in a low flood-risk area. The discussions took place in Cambridge; unsurprisingly, therefore, more than half of the participants were residents of Cambridgeshire.

Nature of the discussion

Before we go into any detailed analysis of participants' opinions, it is important to note the unusual circumstances in which they were given. The risk of being flooded, for almost all of the participants, is not something which they give much attention to in the normal course of their lives. Whether they live with regular flooding (for example one participant expects her land to flood twice every winter) or have never experienced it, participants generally do not give the matter much thought:

Our normal pattern of flooding doesn't worry people too much...

Obviously you don't tend to think about it in everyday life; it is only when somebody calls you up and says "Hey, go to a flood meeting!" that you kind of think that's an interesting point. No, I suppose because it has not flooded in my lifetime it is not something that worries me...

The level and type of attention given to flooding varies considerably – according to how flood-prone the person's exact local environment is, how long he or she has lived in the area, how they live in general with risk, and

many other factors – but over and over again participants repeat that it is only in unusual circumstances that they directly set their minds to the question. The exception, of course, is where people have experienced a damaging and unexpected flood that has disrupted their lives:

It took about 2½ months to dry and then another 2 months to knock walls down... it was a huge operation. Ever since then I've become distinctly touchy about the rainfall, I keep a very close watch on the river. I know exactly how high it can go before I start getting worried...

It gives you a completely different perspective on the weather because even after having a flood you spend a lot of time thinking about you know how many days has it been raining, what is the local river looking like

However, all participants are also clear that the question of flood risk is floating to the surface, for themselves, their communities, and the country as a whole.

Often this awareness is couched in terms of rueful resignation and passivity:

We live in Norfolk and it is all going to be under water soon...

Global warming is the buzz word - I mean, it's like in hundreds of years' time the whole area will be under water. And so you know, where do you draw the line? Shall I move somewhere else? I could move to the Scottish Highlands; but, you know...

But this mood of resignation is counterbalanced by an equally prevalent opinion that this is a period of only temporary difficulty, that the mechanisms which kept flood risk at an acceptable level in the past (small farmers looking after their own interests, tight-knit communities acting in communal self-interest) need to be replaced with more abstract centrally-organised measures.

In general, participants saw their own attendance at these focus groups as one small manifestation of a larger movement - a mobilisation of communities, public institutions and individuals to address the reality of a more rapidly changing climate.

What is at risk in a flood?

The groups mainly consist of people who have not experienced severe flooding at first hand. One has a field that is a flood plain and is flooded regularly; one has had to leave his house for months after severe flooding. Others have had underfloor flooding, which they found to be disruptive but not traumatic:

it causes a bit of trouble because you have got to have floorboards up and leave them up for sometime until all the timber dries out underneath (flooded in 1968)

Many of those who have not experienced flooding have come very close:

when we had a flood in Sawston the water came up to the doorstep but that was before they put the bypass in

Also, many of these have intimate indirect experience of flooding, for example when an elderly parent has been flooded.

For all participants, at the very least it is an experience that they feel very close to even where they may not have been through it themselves. The floods of 2001, 1968 and above all 1953 are well-known in considerable anecdotal detail by absolutely all of the participants, whether they are from families that have lived in the region for generations or are more recently arrived.

In the eyes of participants, there are four very different kinds of flood:

- a flood that encroaches on their property but doesn't reach their house
- a flood that comes inside the house but has not reached above the floorboards on the ground floor
- a "proper" or "serious" flood – experienced by a few of the respondents
- a severely destructive and dangerous flood, on the scale of the 1953 flood for instance – feared by all participants to varying degrees

For those on the receiving end, these are four very different levels of flooding, and they cause very different levels of disruption to everyday life. Participants feel that there is a distinct gap between an excessively broad and simple official definition of residential flooding and their own sense of the varying seriousness of different types of flood event. This is particularly a cause of concern because of the insurance implications of owning a house that has been flooded:

we are in a frustrating position: the house itself hasn't actually flooded and I don't think it could be; but our cellar was flooded and so we are classified as having been a property that has flooded for insurance purposes

Participants completely accept the principle that those at higher risk of flooding ought to pay higher premiums against flood damage; but they universally feel that the actual way risk is calculated is crude and unfair:

I just rent my house and so I can't get any insurance for the contents, but because I live in a flood place that's fair enough. But I can't get insurance for fire or theft which I find is a bit odd because at least with flooding I know I am taking a risk.

The public world of government and insurance companies defines a flood principally by its duration and coverage; but local residents see it as a psychological as well as environmental disruption. Sometimes, as in the case quoted just now, the authorities overreact; and sometimes they don't take the event seriously enough. One single flood event may be much more disruptive to one person than to their next-door neighbour.

There are felt to be two types of special vulnerability to flooding: psychological and physical. Old people and young children are regarded as especially at risk of psychological trauma from flooding, but many participants agree that the last severe flood in 2001 caused quite widespread and long-lasting psychological distress:

*There have been a lot of people that have suffered a lot of stress that have not been to work...
There is one person I know that has never worked since because of the stress that it caused him...
There are older people that have died since then [prematurely, because of the trauma of being flooded]*

Also there is the physical vulnerability that comes from living in a one-storey house. When there is nowhere to move valuable possessions to, a flood is a much more serious misfortune. This of course is physical vulnerability in an extended sense of the term; but damage to property is a much more lively concern than infection, injury or death. Injury and death from flooding are regarded by most as being so unlikely that they aren't worth worrying about. Sewage flooding, because it carries risk of property damage as well as infection, is a particular concern that a couple of participants do voice.

Most vulnerable of all are elderly people living in bungalows. For example, the elderly mother of one participant was woken by flood water reaching the foot of her bed; she was physically unharmed but has since then felt compelled to look out of the window constantly so that she can never again be caught unawares by a flood.

One participant, who is in her late 60s, moved into a bungalow a year ago. She first realised that her new house was a flood risk when she stripped the wallpaper and found water marks from the 1968 and 2001 floods:

We were a bit disappointed... We have got an attic and we wondered whether we could have it converted so that in an emergency we might be able to get up there. It is not boarded at the moment and so we couldn't put any furniture in it and so we'll just to have rely on people in houses probably or will pick up a boat!... But I don't go to bed worrying about it.

Victims of flood risk and victims of flooding

A systematic ethics of risk emerges in the discussions. For participants there are two types of risk, which might be called measurable and immeasurable. A measurable risk attaches to events which are unpredictable in their detail but are frequent and have a thoroughly understood causation, so that in aggregate they can be considered predictable. In other words such events are a structural feature of (certain types of) human life, which the insurance industry can give a fair price to. Whether the outcome is severe or mild, a measurable risk poses purely personal questions of practical choice. Essentially, the individual has to be free to look at his or her own measurable risks and act as he or she feels is best. So, if you live in an area at risk of flooding you don't by that fact have any moral or financial claim on society.

An immeasurable risk is what insurers, and indeed participants in these two discussions, call an Act of God. It is everything that insurance companies won't put a price on. Victims of this type of risk do have an immediate moral and financial claim.

This ethical schema is undisputed; all participants take it for granted and believe that official/expert policy also is shaped by this distinction between measurable and immeasurable risk. The problems arise when it comes to actually applying the schema. Insurers, officials, experts are felt to make the distinction inaccurately and unfairly.

This mismatch can happen in two ways: in one case, incomplete information is delivered from "them" to "us", so that we make our practical choices on the basis of an inaccurate reckoning of the risks we are taking; in the other case, "they" keep aggregating a few distinct Acts of God into an overarching structural risk – which has the effect of silencing our moral and financial claim on society. So, when it comes to risk there are two causes of injustice: incomplete information or false accounting. In both types of case, "they" unfairly tell us that we should have provided in advance for what "we" experience as an Act of God.

The injustice of incomplete information happens most flagrantly when people are uninformed or underinformed about the flood risk of the house they are moving into. Participants almost universally feel that it is reasonable to assume that whoever built a house took flood risk into account. In other words, if it's an old house there is no serious risk (i.e. flooding above the floorboards) because they wouldn't have built it there or at any rate it wouldn't have stayed inhabited until now, or at least it's built to cope with a flood; and if it's a new one there is no serious risk because they wouldn't deliberately build on unsuitable land and they have the expertise to know what land is suitable. There are two very specific groups of people who are felt to be positively victimised by a recent and increasing tendency to build on land at risk of flooding: first-time buyers and newcomers to the region.

That's what I can't get to grips with. I will go back to Wisbech and where there was nothing there 2 or 3 years near the River Nene all of a sudden overnight there is a great big estate with bungalows.

And it is an area that has always had sandbags all along the Nene and it's given out on the radio that there is a risk of flooding and all the sirens go. And then all of a sudden there are these bungalows being built and I don't know about the safety of it...

Surely estate agents or people who are selling these buildings should be told to tell a first time buyer or whoever is buying that this is built on a flood plain and there is a potential risk whether it be 5%, 10% or 50% that this area could be flooded. In that case a lot of people wouldn't buy and therefore they would stop building on these flood plains...

Yeah because obviously if you lived in the area like, and they started building on those fields that you know get flooded... you are going to think "who is going to buy one there?" And so if you know the area you're not going to move there...

If you knew of anybody [who was thinking of moving to a risky spot] you would say "Hang on a minute, that's a flood plain". But now in towns in that you have got a lot of people, I mean obviously in Northampton it is a good place to live you can go to Milton Keynes or wherever. And so you get people coming up from these towns to buy a cheaper house and they don't know and that is unfair...

Right near the river opposite the pub there was a field. The houses were there on either side and there was this gap and then they started to build on it. All the villagers said "That used to get flooded every winter, I don't know why they are doing it there" and it was obvious because otherwise it would have been built on donkeys' years ago. All the houses around were old houses, they weren't just put up in the 50s, and there was a gap there; and so obviously that was where it flooded...

You kind of pacify yourself because you think "Well surely they wouldn't have built 50 new houses if there was a chance that [flooding] was going to happen"...

I don't understand why they have been given permission to build these new houses right next to a river that is going to flood.

No one expects that this injustice will last long, but estimations of how in fact it will end depend on the individual participant's personal circumstances. Richer people and those born in the region tend to see widespread new building as undesirable for many reasons; and they simply expect a national ban on building on flood plains or a class action against house builders which will have the effect of regulating their activities. Poorer people (usually younger or older) and incomers to the region are more likely to expect that new regulations will come in to enforce risk disclosure to the potential buyer of a house. At all events, participants unanimously feel that there must be more protection for house buyers and tighter regulation for house builders.

The injustice of false accounting happens when “they” tell you that you are at risk of flooding although you know that you are not, or at any rate not in the way that “they” have constructed the category of flood risk. Here the picture is much more complex. People want to know as much as possible about the risks they face, and in principle they support every refinement of flood-risk measurement; but when they have actually experienced a flood event or come close to one, they naturally find it easier to see it as unique rather than characteristic, an Act of God rather than a feature of the risk landscape.

It is interesting the psychological effect it has because even though the water came quite close but because it was quite an exceptional thing it didn't really feel like we were at risk of flooding until we started getting these letters from the Environment Agency...

Who can predict Acts of God? - because that in effect is what it is.

Perhaps every refinement to previous official risk assessments needs to be more clearly presented as another guess – more accurate than what it replaces but still a guess. Most participants are aware to varying degrees of the new flood-risk maps, but their natural reluctance to accept bad news is doubled by the fact that they know how much the maps do not take into account:

On what rainfall do they base their map? I mean when we was flooded it was on the local papers and news and that that there was 2½ inches of rain in 36 hours. And to the best of my knowledge we have never had that much rain so quickly. We have had it over 4 days but when the river is really in flood there is a lot of water going down there. If you get 12 hours of rain there is a lot of water going through. But to get continuous for 36 hours heavy rain I don't believe we've had since.

My reaction was I didn't really believe it. It was only when I actually looked at the map as to where it was. I was actually right on the edge but as far as they are concerned yes you are...

Yeah I mean I didn't feel at all at risk until [the insurance agency] wouldn't insure our house because it was in the wrong postcode although nobody in that postcode as far as I know has ever flooded. They had done a lot of research or something.

The main area of concern here is that the Environment Agency's maps only take account of the broad determinants of flood risk – water table and elevation above sea level. But the actual risk for a particular property has always been determined by the additional factor of how rainwater runs off into rivers and drains. And participants are adamant that runoff is becoming an increasingly important factor; partly because intense rainstorms are becoming more frequent, but principally because of changes in land use over recent decades:

It's not just weather conditions, there are all sorts of things to do with land use and things like that, there are a heck of a lot of things. House building and agriculture has changed totally over the last 100 years.

This sense of injustice is more strongly felt by those with long-established links to local agriculture. They are most likely to see flood management in hydraulic terms, as a question of dealing in the best way possible with occasional and temporary excess of water. They tend to see the issue of flooding in the context of land and water management in general.

Yes you get a fast runoff, you know, the 4 inches in the 18 hours that we had. That was the cause of the problem. 2 inches in 18 hours wouldn't have caused a problem.

- Even 3, because we have had that since then; I know that because I watch these things!

Incomers and urban residents tend to be more accepting of the static picture presented by flood-risk maps, and to see the issue more as a long-term structural question of social policy:

[Flash flooding from runoff] is a risk I can live through because the chances of something occurring are more remote; but for the flood plain that means that there is an inevitability that if it gets up there it will go. I mean I can understand the preparation of the [Environment Agency's] database and then using it to refine what is rather a crude method at the moment with the postcode. But it is still going to leave a problem at the end because there are going to be people who will not get insurance if that is the way they are going to use it. And so the question therefore is, is it better if it is up to people to accept the risk themselves or does the government see that it has a role in insuring them if no one else will...

People like the Dutch must have massive experience of water about the place. Assuming there is a technical answer [...] it will come at a price and you won't be able to do everything and so there will be some houses that will always be under water and it is just not cost effective to do anything about them and they will just have to be left. And the decisions will come round to well what blocks can we protect and what will it cost to do it and then it is of cost benefit really which is how often is it going to happen and you know how big are these costs going to be every time it happens. And then as a community you must make a decision on that just as you do with other things. And so it is not going to have a happy ending for everybody and I don't think it is realistic to expect it to have a happy ending for everybody....

What is it like to be flooded?

Irrespective of the severity of any flooding they may have experienced, there is an expected three-part sequence to participants' feelings about a flood event. First, there is unease, either when an official warning comes or more usually when some local marker of imminent flood risk is noted:

In Sutton Bridge the fishermen know and then you see the sandbags and then I think if I'm driving I'm not going to go home that way by the river tonight because it's dodgy...

We know the lowest drain and we go out there with a wooden rule and we just touch the water and measure it at the top of the drain. The pipes there to take the rainwater away will also bring it back to you and that is the way we always gauge it now.

Our warning sign is the house by the river at Stapleford which flooded badly in 2001 and I reckon as soon as that floods again then we will start worrying...

We have got a very old bridge just down stream from us and quickly the two outside arches get filled up with water and then of course there is only the middle one to take the water

Next comes panic. Those who have been flooded or near-flooded all use exactly that word, and those who have not come close to being flooded expect to panic too:

Do you start moving furniture upstairs and things like that? It is total panic - what are you going to lose and what do you do?...

We haven't been there for a flood but we know from our neighbours etc. when to start to panic...

[A neighbour] came running behind me and said "you can't go that way, you will have to take the car all the way round". I really panicked because I thought he was going to get drowned...

We started panicking about mid afternoon on that Sunday I suppose when we saw water coming up the garden, it was coming pretty fast up the garden. And so we immediately started taking all our valuables and furniture that we could upstairs...

And then there is the comedown – relief if the water retreated before getting indoors, mess and trouble with the insurers if it came in.

It is interesting to note that in this canonical sequence there is absolutely an expectation of shock and panic. This is, as far as can be imagined, a "good" flooding experience; a bad one is where there is no warning phase and the panic is far more intense:

And you have got water up to there and you try and get out and especially being woken in your sleep... and so it is not like you

have watched it and you have seen it and you are prepared for it. I mean to be woken in your sleep and have it has got to be one of the worst ones.

The other requirement of a relatively good flooding experience is that there are other people there to help you. Newcomers who have been flooded or have come close all remark on the spirit of solidarity shown by neighbours; and long-term residents take this for granted. But they are sardonically aware that this is a solidarity of the afflicted; the problem of flooding simply does not engage those who aren't personally at risk:

I mean it's a source of attractive pictures [in the local press] when it happens

Yes, it's [discussed in local press] after the event rather than before

I'm talking from a rural perspective, and the whole of Wellingborough wouldn't really care if my house was flooded until they saw the pictures of how I was coping!

You are either involved or you are smug because you are living 10 feet higher

I think that, thank goodness, there is still a bit of human nature there and when people are in trouble they will go and help them. But until it happens they have their own lives to look after...

There is considerable dissatisfaction expressed with the flood sirens where these have been installed. For one thing, as a matter of detail, most residents are unaware of when the sirens are merely being tested, so they generally don't know whether a particular blast of noise is a genuine warning. But also there is the problem of what exactly they are meant to signify. Are they meant to mark stage 1 or stage 2? Are they telling you to start worrying or start panicking?

You can hear them testing the flood warnings but nobody has specifically come around and said, "By the way, when you hear this, panic!"

It would better fit with people's deeply established expectations if there could be two distinct tones, one to represent a general alert over the next few hours and another to represent imminent danger of flooding.

The story of flooding

If something is a problem, it must have a history. There is universal agreement as to why flooding is becoming more of a problem; differences of emphasis are all that separate the urbanites and newcomers from the native East Anglians and farmers.

In the background (especially far off in the background for rural participants) there is the big fact of climate change:

These events are going to be more common with global warming and torrential downpours, they are the things that do the damage

But this is regarded as a relatively minor factor compared to the two changes in land use briefly mentioned above – industrialised farming and irresponsible house building.

Changes in farming

Small-scale farmers used to keep the water under control out of enlightened self-interest; they knew the land, they had no other resource, and they themselves lived on it. So they maintained it carefully:

Years ago all the ditches used to be emptied by the farmers; the idea of ditches was to give a couple of feet to drain the water off. Now they don't; all the ditches are filled in. And so in the winter them ditches acted as a reservoir; but now of course...

Farming has changed so much in the last 20 years. We used to have smallholdings and individual farmers all had their own dykes and ditches so water just drained away naturally into the local cut and that would go with the sluice gate and out into the Wash.

But agribusiness operates to a different logic, where the risk of one waterlogged field is a risk worth taking.

A lot of it is greed ...

It is those extra few yards

There used to be hedges and then that green verge and then there used to be those bits that were built for the water just to sort of come away from the fields and it would just drain away naturally into road. But because the farmers have kind of built further and further and ploughed and ploughed until they are almost on the road, the hedges have gone, the dykes have gone and they practically farm on the road in some cases.

All of the land now is owned by consortiums of large farmers that have up to 2000 acres of land now. Whereas it used to be somebody with about 50 acres that could keep all their dykes. And now loads have been filled in and don't all have underwater drainage and we constantly see big fields that are not flooding but they are just completely wet. The crops can be spoilt as well but it's a thing that 20 years we didn't even see. It seems that all the water isn't getting away as it used to with all the little network of the drains and dykes that used to lead out into the ? that was built especially for that purpose.

That is also part of the problem. I mean the amount of run that you have from modern field systems where it clogs up rivers...

My parents have a small farm but just everything seems so massive that comes along nowadays. The dykes and ditches have been filled in because of the massive equipment that comes to do the harvest. Everything is just on a huge big scale and I think something ought to be done to get together to see about that...

Most participants do not believe that modern industrial agriculture will ever start to manage the land sustainably out of enlightened self-interest. They think that sustainable land-use will need to be enforced by regulation. In fact, many believe that some sort of legal obligations already exist to maintain drainage channels but that the law is a dead letter.

The division of responsibility for drainage between public authorities and landowners has become completely confused for local residents. Perhaps the District or County Council has taken on some of the maintenance activities that small farmers used to carry out for themselves; perhaps the Environment Agency can issue some sort of enforcement notices that require farmers to clear their ditches. No one is sure, but all are agreed that the traditional system has broken down and has not yet been properly replaced:

Those dykes have always been there and those dykes were there for a reason and so to fill them in that reason is not going to change, is it? They were there to contain the water and if you fill them in the water will go somewhere else...

The confusion applies to the gate and lock systems as well; and here, because the opening or closing of a gate can be the ultimate reason why your house flooded and another was spared, the gap in accountability is at its most problematic:

The gates are supposed to be automatic and they are on private land and they felt that [the landowner] was supposed to go and check them when the flooding started, they were meant to make sure that gate was automatically open and they hadn't. I think the village council they were doing an investigation...they sent a newsletter saying they were still in the process of looking into it...

Basically no one is going to admit to negligence because there was a lot of damage; one of the pubs was completely flooded and was closed for 6 months. And so if someone was making decisions on who is going to cop it basically they won't discuss that... it is even worse that no one is even owning up to it.

That one episode illustrates perfectly what other participants say of the whole issue of flooding:

It's the sort of thing that you always feel that nobody is really enthusiastic about...

I think it is a difficult subject and no one wants to take ownership of it

Maybe a private individual neglected a public duty; maybe a public official made a correct decision; maybe an official made a mistake. It doesn't seem likely that the village council's investigation will be conclusive.

Houses on flood plains

Inappropriate and irresponsible house-building is by far the biggest aggravating factor in the eyes of almost all the participants. First of all, as discussed above, there is the unfairness to the buyer; but more important than this, there is the fact that permeable soil is replaced by impermeable concrete. New housing developments on flood plains are a fraud on the innocent newcomers who move in; but careless development in general, whether on or off the actual flood plain, threatens the existing population. :

There are 200,000 houses that are going to be built between Cambridge and London... The M11 corridor...

Yeah, and so 200,000 houses - so you stick the foundations in the ground with this concrete which is non porous and you get displacement of the water table and so where is it going to go? Where does the rain go? It goes down the rivers and the rivers rise much quicker. And the only place they are going to release it is in the river plains...

I don't think it is any wetter, I don't think we are having any more rain than we have ever had, maybe a little bit, but it is because there is so much solid concrete in the ground I think the water has got nowhere to go...

The ground is under extreme pressure with the amount of water and concrete. Concrete in the ground is just displacing [the water], that is why you are getting a lot of the flooding. ..

Its not just the flood plains that are the problem, it's the amount of concrete they put in that raises everything else. It doesn't absorb water even if it is not on a flood plain - you have the water rising and that is causing chaos all the way round...

Piling accentuates the problem because you are having 15/20 piles on a piece for one house and it is 11 metres in the ground. All that soil is coming out and all that concrete is coming in and it comes back to this displacement business - where is the water going?

Mostly participants are quite careful to acknowledge that they personally have no right to prevent large-scale house-building in the region; they may not want the new developments in their back yard, but they accept that others have legitimate interests too. However, there is general alarm about the apparently underplanned style of development that is being approved on a large scale. To go back to the distinction between measurable and immeasurable risk, there is a powerful feeling that large-scale development upriver from where you live has the effect of loading you with risk that you never intended to take on and don't deserve to pay for:

We realised that [there was some flood risk] when we bought the property... but the more they build in the Nene valley the more consequence for everyone else. We went in with our eyes open but now the exact kind of balance is ticking against us...

And there is a widespread feeling that planning regulations are applied perversely: the big commercial house-builders can get away with irresponsible large developments, but the individual looking to build or develop his or her own house faces severe obstacles:

[A family member] wanted to build this year and he can't get planning permission and it is half the plot to do the same house and the Environment Agency were asking him to pay out fortunes of money to have these tests done when ours is done and... you know they are building these houses and there don't seem to be any questions asked; they will go ahead and build these houses.

This, the biggest problem as far as participants are concerned, is also the hardest to solve:

I hope there will be more regulation of builders...

I can't believe there will though, because they need to build the houses

On the one hand, it is local government at District Council level that best knows what the microenvironmental risks will be of proposed new developments; on the other hand, it is only national government that has the clout to force good practice on the big house-builders. Government is powerless at the local level and indifferent at the national level.

Conclusions

Though it is not a matter of great concern even to most people who live in areas officially deemed at risk, flooding is emerging as a more pressing issue. The most alarming aspect of the problem, which participants feel they have almost no control over, is the insufficiently planned building of new houses. If actual flood events become much more frequent, this seems sure to become a major concern of regional or even national politics. Those on the receiving end already regard current building policy as unwise, unfair and dishonest. But for the moment, the risk seems remote enough and the possibility of effecting change remoter still; so the whole matter is written off as another disappointing aspect of the modern world that no one can do anything about.

Water-management, on the other hand, is something that naturally needs to be addressed simultaneously at every level from the individual household to the nation. There is a general feeling that the district and village-level water-management systems of the past have degraded worryingly in the face of major social and economic shifts, most notably the industrialisation of agriculture, the professionalisation/commercialisation of local government, and greater population mobility. But the response to this is more one of expectation – expectation that a viable new water-management system will emerge to fit the new realities of economy and society.

The general attitude to what is being done at the moment by official agencies is of support in principle tempered by scepticism as to detail. Participants feel – and perhaps they are right – that the public institutions around and above them are at least casting around for a better way to do things, even if they haven't found it yet:

There is a feeling that there are several groups of people that have an interest in flooding but there is not the feeling - I am not saying it is not the case but it is certainly not the impression at our level - that they necessarily talk to each other...

We find that the people on the ground who actually work with us and the Environment Agency, the people who actually come and do the work, are absolutely top, they are fine. But the people at Whitehall or whatever haven't a clue what is going on.

- Yes, they come and visit us quite regularly, they are very good actually, and as I say it's them that chain the lock back, we don't have a lot to do with it...

- I think the Environment Agency are doing a lot...

The information channels set up recently – the Environment Agency call list, the EA website, the leaflets, the police roster of numbers of residents in each house, the sirens – are mostly judged in this light. A small minority

check the website or ring the Floodline regularly and think that they are well provided for; but most think that much remains to be done:

What are you expected to do with the letter when it comes, saying "You live in an area that is at risk"? Does it mean "put baked beans in the attic"? Does it mean "build a defence around your house"? How does the authority expect people to react to the letter?...

I assumed it was a first step but obviously it isn't

Many think that information should be passed out at the most local level; central agencies could provide the template but leave the drafting of actual detailed advice to the individual Parish Council:

Parish Councils are represented mainly by people from their particular village and they would know the high ground, the escape routes, the sluice gates, everything. If that was written in a leaflet from the Parish Council to every resident in Whittlesford, Sawston, Hildersham, Linton and where to go in times of emergency and how you could help and this that and the other. It is smaller but more local.

The most pressing need, though, is at the communal rather than household level. People regard the drainage systems as the prime mechanism of flood management, and they can see responsibility for maintenance slowly falling away between the private and public spheres. Here they want and expect to reengage, with the agenda coming from the local level and coordinated centrally:

They should all co-ordinate right from the bottom really so like the Parish Council and then go to the Borough Council and then the District Council. There has to be a way of working from the bottom so can say we have problems and make suggestions how they can be protected as part of a larger scheme. You have to make people aware because otherwise they will take no action at all. If people aren't worried about it why should they spend money on it?

When they can see that it is part of a coordinated system, involving the insurance industry and various levels of government, people are absolutely ready to buy emergency protection for their own house and pay a levy towards protecting their area. Likewise, they are quite prepared to have public authorities forbidding some smaller-scale defences, as long as the larger-scale rationale is there for everyone to see and judge:

I think it is reasonable to say to somebody "You can't build that wall"; but they have to look at the whole area and then say "This is what we are going to do to protect this area to divert the flooding away". What matters is that they tell you how if they can control it how they are going to go about it.

They can see the first glimmers of such a system emerging; but for the moment they remain sceptical. They want to “take ownership” of the problem, but that is hard when even public authorities are more comfortable with the idea of the citizen as atomised individual. As Jesus remarked (*Matt. 5.45*), ‘the same rain falls on the just man and the unjust; and if the rain falls too heavily on them they will just have to sort out a solution together’. The problem can’t be cut up into something that each household must face alone. There is a dangerously fine line between a rhetoric of empowerment and a reality of abandonment:

Cambridge buses have these Environment Agency posters that say “The last defence against flooding is You” and they have a picture of somebody putting sandbags outside their house

- I think it is slightly unreasonable...

Water management is where the individual expects to connect with the state in the most immediate and natural way.

Appendix 2: TNS Gallup: Qualitative study – “Flood”

Qualitative study:

"Flood"

Qualitative analysis for NVE


May 2004

Project number. 58619

Responsible in TNS Gallup: Haakon Korsgaard

Contents

	Page		Page		
1	About this study	3	14	Confidence in existing flood safety measures	24
2	Summary of key findings	4	15	Private flood preventive measures	26
3	Profile of respondents	8	16	Expectations for the action from authorities	27
4	Stamps of groups – a key to interpretation	10	17	Perception of responsibility	28
5	Basic views and attitudes towards flooding	11	18	Need of information	29
6	Positive aspects of flood	13	19	Preferred information channel	31
7	Concept of a “hundred-year-flood”	14	20	Suggestions for documentary	32
8	Differences in basic attitude, Åsnes – Notodden	15	21	Participating in flood mitigation	33
9	Hierarchy of concern	16			
10	Rational thoughts about flood	17			
11	Emotional thoughts about flood	19			
12	About flood – an illustration	22			
13	Concerning moving – and why they stay	23			





1. About this study

- **The purpose of this study is to get feedback from residents living in areas exposed to floods, about their feelings, fears, views and attitudes towards living in such an area. The study is a qualitative follow-up of a larger quantitative study on the same subject, carried out in several European countries.**
- **Two focus groups have been carried out. One in Notodden 25.05 and the other in Åsnes/Flisa 26.05.**
 - The respondents are randomly selected among those who have property and/or live in an area directly affected by flooding. (In Notodden this is primarily the Tuven-area. In Åsnes it is the areas along the Glomma River near Flisa, Arneberg and Hof). The respondents are recruited from the population sample previously used in the quantitative study.
 - Spread in age and gender has been preserved.
- **Focus groups are a qualitative method that attempts to bring forward the largest possible number of views from a group. It provides knowledge and understanding as opposed to measuring quotas. Because of this it gives insight in how people think and why, but not to what extent the different views are shared by others.**

2. *Summary of key findings*

- **Flood and danger of flooding give strong negative associations.**
- **Previous experience makes the respondents well aware that they live in an exposed area. They do not need information from outside to tell them this.**
- **Some of those that have only recently moved to the area, were still surprised how exposed their house was. They did not get much information on this in advance.**
- **The assessment of risk is detailed and concrete. They know precisely how high the water level was during the latest major flood, and reckon on that a future flood may be even a few decimetres higher.**
- **They think the danger of a new major flood is increased as a consequence of a changing climate and direct human interference in the river system.**
- **The thought of a flooding provokes strong emotional reactions. It reduces quality of life, and makes them feel powerless.**
- **The worst aspects of flood seem to be all the trouble and extra work it leads to. The feeling of filthiness, the smell, the work with moving belongings, evacuation, and the cleaning afterwards.**

2b. Summary of key findings (contd.)

- **Some worry about material losses as well. This is however related to the process of getting insurance money, the fear of losing irreplaceable objects, the fear of losing ones economic basis, etc.**
- **In Åsnes they are concerned about the quality of the emergency plans. They were considered to be inadequate in 1995.**
- **There is also a small fear of death or injury. This is primarily related to relief work and rescue operations. Based on experience from 1995 this work is perceived to be risky and dangerous.**
- **Moving to safer areas is seriously considered by some. But the emotional, economical and practical reasons to stay are stronger than the fear of flooding.**
- **In Notodden the focus is just as much on the more or less annual flooding by ground water, as on flooding by river. They do not believe that it is possible to protect against the ground water flooding.**
- **In Åsnes they rely on the flood barriers to stop “normal” floods, but they fear that the dikes are weakened after 1995, and that the water may break through under them. They also think the protection against flooding from the smaller rivers Flisa and Auståa is insufficient.**

2c. Summary of key findings (contd.)

- **Private preventive action concerns primarily agreements with insurance companies that the basement etc. is not to be used.**
- **They admit that their own emergency plans on how to cope with a new major flood could be better. (What should be saved first? Where to go? Etc.)**
- **In Notodden the groups are somewhat apathetic and lack trust in preventive efforts. They expect little or nothing from the authorities. “No-one can do anything”**
- **In Notodden the hydropower companies have a responsibility to open dams in time, but they are suspected of keeping the water level for profit reasons.**
- **In Åsnes the expectations to the authorities is related to better organisation of the emergency plans than in 1995. They also want a clearer responsibility definition for the decision on when to break the dikes.**
- **Flood warnings via teletext and local press are used and seem to work well.**

2d. Summary of key findings (contd.)

- **Teletext, local papers and district radio are suitable media for long term time-indefinite information. During a crisis they recommend also using local radio.**
- **In both groups there is a will to actively participate in flood mitigation. In Notodden this is more abstract than in Åsnes. They do not really know what they can do. In Åsnes, everyone who lived in the area in 1995 had participated actively in the relief work, and they seemed prepared to be involved again in case of another flood.**
- **The Notodden group was not aware of the flood zone maps, but many in Åsnes were familiar with these.**

3. Profile of respondents - Notodden

Name:	Age:	Occupation
Per Gunnar	54	Farmer
Svein	50	Driver/Farmer
Synnøve	52	Factory worker
Ottar	46	Pensioner
Anne Gerd	50	Housewife
Taletta	48	Dressmaker
Grethe	40	Salesman
Toralf	51	House-painter
Oddvar	64	Garage assistant

3b. Profile of respondents - Åsnes

Name:	Age:	Occupation
Tom	42	Industrial worker
Håkon	34	Health department employee
Rolf	53	House-painter
Anne Marit	37	Chef
Simen	34	Farmer
Hans jacob	63	Farmer
Unni	47	Farmer
Heidi	38	Home help
Jon	47	Farmer

4. Distinctive stamps of groups – a key to interpretation

- **The two groups of Notodden and Åsnes are fairly different in their approach to the problem.**
 - The group in Notodden uses the great flood of 1987 as their frame of reference. They do not find that much effort has been made to protect them against an similar flood. In order to understand this group, it is also important to know that many of the respondents' primary problems with flooding is connected to raising ground water levels. This is a more frequent problem, but at the same time it has less public focus than a flooding of the river. A consequence of this reference frame is almost an attitude of indifference and suppression. They seem to have resigned and do not seem think that anything can be done. This fear of the “annual” raise of water, and the almost apathetic basic attitude towards this, is the key to understand much of what is said in the focus groups.
 - The group in Åsnes have the “Lilleofsen” (Little “ofse”)-flood of 1995 as their frame of reference. By flood they associate to flood disasters, and their opinions must be viewed in this light. After 1995 the flood barriers have been strengthened. The threat is a new flooding-catastrophe of the Glomma and adjacent rivers. Future floods with five or twenty-year-return periods are considered less and less a threat. Two respondents from the Åsnes group are also representatives of the authorities in charge for flood assessment. Their level of knowledge is fairly high, and probably higher than the average population of the area.

5. Basic views and attitudes towards flooding

- **Flooding is considered a natural phenomenon that will return in intervals of a few decades.**
- **A major flood is destructive. It is a natural disaster that destroys large values.**
- **They believe the danger of flooding has increased as a consequence of direct human interference in nature. When the natural course of a river is regulated, water will find new courses and break through at new places.**
- **On the other hand, some respondents in Notodden have an almost naïve confidence in that regulating rivers eliminates the risk of major future floods. The recent flooding was therefore surprising.**
 - *"The water dams are empty. The last flood was very surprising"*
- **They think the danger of flooding have increased with the global change of climate, and that weather and natural disasters are getting more and more extreme. Because of this they have realistic thoughts concerning the possible dimensions of new floods.**
- **Flooding is unpredictable and incalculable. The combination of much rain and fast melting of snow cannot be predicted far ahead. This uncertainty enhances the psychological stress.**
- **The fear of flood affects quality of life negatively. It causes anxiety and a feeling of powerlessness.**

5b. Basic views and attitudes towards flooding

- **We made an interesting observation, of a form of “status” from being a victim of flooding.**
 - In Flisa all the respondents had been directly affected by the 1995 flooding. Two respondents were hit so badly that they had to completely rebuild their houses. In this context the others tended to underestimate their own damages and frustrations.
 - Some of the same in Notodden, but there they distinguish between those that only have their fields damaged, and those whose residences were hit.

6. *Attitudes (contd.) – Positive aspects of flood*

- **The Notodden group found no positive sides of flooding.**
- **In Åsnes they pointed out positive elements looking back on the 1995 flood.**
 - The flood brought the local community closer together. Facing a common threat and participating in rescue operations together was uniting.
 - Flooding has an educational effect. It provides experience in how to cope with crisis in the local community. After each major flood more efforts are made to be better prepared for the next.

7. Concept of a 100-year flood

- **The 100-year flood is thought to be an extraordinarily large flood. Beyond this there is little knowledge of a technical definition.**
- **The concept creates the underlying attitude that one 100-year flood will not immediately follow another. You will offer a few years or decades to respire in between.**
- **The mental image is that 100-year floods historically come in ca. 30 year intervals. Intellectually they know that this is incorrect and it can come earlier, but emotionally it is still clear that they do not think the next 100-year flood will come in the next few years. 1987 (Notodden) and 1995 (Åsnes) are used as reference, and they therefore “think” the next major flood will come around the years 2020-2030.**

8. *Differences in basic attitude, Åsnes – Notodden*

- **The two groups experience two different situations**

Flisa:

- In Flisa they fear another great flood. They trust that existing flood barriers can withstand normal floods up to the 20-year return period.
- Concern about a new “Storofse” (Great “ofse”) seems more remote. They know the danger is real, but they still do not really believe that they will experience it themselves in the next few years. “It comes in about 30 year cycles”, they say.

Notodden:

- In Notodden they see flooding more as an annual phenomenon. They claim that it is the ground water that is pressing upwards more than that it is the river flooding. This annual damage by small floods seems more mentally strenuous than the fear of the next major flood.

- **These two types of concern imply that we also experienced two fairly different ground attitudes in the different areas.**

- In Flisa they have more “guts” and will to take preventive action, to maintain the dikes etc., but in Notodden their attitudes towards floods were somewhat apathetic and resigned. “It is just awful – there is nothing we can do”

9. *Hierarchy of concern*



1. Extra bothers

Highest level is the worry of extra job, inconvenience and disrupted plans, all consequences of being affected by flood. In this mode they are more concerned about the extra bother than real losses.

2. Smell, dirt and environment

Water in the basement means smell of mould, dirt and other destruction in the residential environment. This applies to both outdoors and indoors.

3. Loss of irreplaceable objects

Things the kids have made, family treasures and other objects of sentimental values that cannot simply be replaced by a payout from the insurance company

4. Economic uncertainty

Uncertainty as to whether one is good enough insured, about the assessment, the fear of prolonged arguments with the insurance company. The seem just as concerned about the process as the outcome.

5. Does the emergency plans work?

Previous floods have given a feeling of poor preparations. Much had to be organized there and then. The respondents do not know if this has been improved.

Concerning organization of relief work they worry about the general weakening of voluntary organisations. The same applies to structural changes of civil defence.

6. Life and health

Fear of loss of life and personal injury is far behind. This was most notable in Åsnes, related to high risk rescue operations during the previous great flood.

10. Rational thoughts about flood

- **The respondents know very well that they live in an area exposed to floods.**
 - In this context they hardly represent a common citizen. One should note that it is because of this they were recruited. This study does not include those who normally live in safe areas, but might be affected by completely unexpected events.
- **They know this because of their own experience.**
 - In Notodden they talk about the flood of 1987 as “the great flood”, but their emotional concern seem to be just as much about the annual small floods.
 - In Flisa the thoughts go to the flood of 1995, but also former great floods. 1967 and “Storofsen” (The great ofse”) of the 18th century.
- **The risk of flooding is assessed at a detailed level. They know well which houses are normally hit, and which are not.**
 - “Normally hit” means they have been hit by previous floods.
 - “Might be hit” is based on how close it was the last time. They seem to add a margin of about 30-50 cm higher water to the maximum level at the last flood.
 - “Safe” means they live so many metres higher than the previous flood level that they find it improbable to ever be affected directly. Or that they live in the higher part of a settlement, so that a flood reaching them will mean total disaster for all the residences on lower ground.

10b. Rational thoughts about flood

- **Every year they fear a new flood. They pay close attention to changes in the surroundings that may signal a new flood.**
 - In a long term perspective they take notes of new lakes in the forest, changing water level in lakes, new courses of streams, marshes that get wetter etc. They interpret this as a consequence of direct human interference in the river systems.
 - *“Water cannot be contained. If we stop it in one place, it will break through somewhere else”*
 - *“The landscape is changed and they “forget” that it has been the course of a river for many years. They redirect it, but the water won’t yield.”*
 - In spring, they keenly watch the daily water level in rivers and lakes

11. Emotional thoughts about flood

- **The respondents' rational thoughts about flood leads to emotional concern and fear.**
- **The fear is real, and it affects quality of life.**
 - In both groups some respondents are genuinely sad and tearful when talking about the emotional aspects of living like they do.
 - Faint-heartedness, desperation, and constant anxiety are three words that describe their fear.
 - Some say they react psychosomatic, They “get nauseas and sick because of it”
- **The negative feelings are related to the thought of all the extra trouble and work flood damage leads to.**
- **Another basic feeling is that of powerlessness. They are innocent victims to forces of nature out of control. This feeling is stronger in Notodden. In Åsnes, perhaps building and enhancing dikes makes them feel that it indeed is possible to fight the river.**
 - The only real countermeasure is moving, but everyone have practical, economical or emotional reasons for not doing this. (See own page)

11b. Emotional thoughts about flood

- **There is some economical concern, but it seems to be secondary compared to the psychological costs of powerlessness and the concern for inconvenience and extra work.**
 - There is a genuine fear that a flood may destroy irreplaceable objects. This can be everything from something the kids have made to hereditary treasures.
 - They fear the battle with the insurance companies. This is a prominent subject in both groups. They have experienced that these companies are not very co-operative. They have arguments on the actual values of the property, whether to restore or rebuild, the case draws out in time etc. In Åsnes they say that for those hit by the 1995 flood, the stress and insecurity of the insurance case was far worse than the economic losses they eventually ended up with.
 - They also worry that their residence might be hard to sell
 - In the rural area of Åsnes, the greatest fear of economic loss is related to losing large areas of crop land.
- **There is comfort in knowing that others are worse off than themselves**
 - *“In a global perspective our floods are small. On the news we see dead people floating around and massive destruction. And they do not seem to get any warning in advance.”*
 - *“Our situation was bad, but at our neighbour’s it was worse”* (expressing care)

11c. Emotional thoughts about flood

Heard in Notodden:

"When I see the water level rising, I get nauseas and sick for days"

"I cannot talk about this. I might begin to cry."

"I told my daughter about this focus discussion, and she said to me; please tell them the flood is very horrible."

"When I see water trickling up on my parents lawn, then I know that my basement is next.."

Heard in Flisa:

"In '95 my furniture was floating around in my living room. It was unreal, like an action movie."

"When I see the river rising, I think about the kids. Will they be all right if I'm not at home?"

"I have just moved here, and I get very uncertain. I've only heard of '95."

"What I associate with flood? It sends a cold shiver down my spine!"

12. Rational and emotional about flood – an illustration

Concerns

Thought of troubles

Smell, extra work, moving,
cleaning up

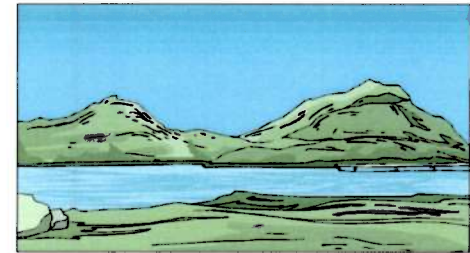
Feeling of powerlessness

*"The water just keeps trickling
up through the basement floor"*

Fear of economic losses

Concern about assessment
Fighting the insurance company
Irreplaceable objects

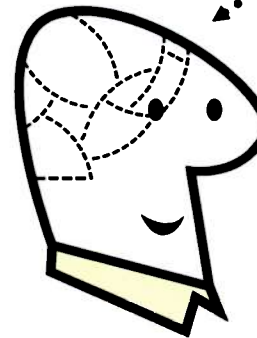
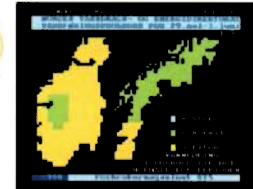
Rational stimuli



Keeping a keen eye on the
river.....



Watching flood
warnings...



Observing long
term changes in
the
surroundings.



13. Concerning relocation – and why they stay

- In Åsnes the primary reason to stay is that the property is connected to agriculture. One cannot simply switch a farm as a farmer.
- Even though the respondents come from different households and types of houses, there seems to be some distinction between Notodden and Åsnes. In Notodden many live in relatively new housing estates, whereas the people from Åsnes come from farms and houses with long tradition and history. It makes it less likely for people from Åsnes to consider moving.
- One respondents (that had to completely rebuild her home in -95) say, however, that she just cannot face another flood:
 - - *"If it floods again like in 1995, I move." (Åsnes)*
- There is some complaints about lack of information in connection with building or buying houses in exposed areas.
 - *"When I was buying, I checked with "technical department", but they did not tell me that the property was extra secured against flooding. I was shocked when I received my first bill for my share of the flood works. I would never have bought today if I knew." (Åsnes)*
 - *"I think it is strange that they grant you a building permit on such a place" (Notodden)*

14. Confidence in existing flood safety measures

- **In Notodden safety measures were not of primary interest. Those who felt most exposed, said the threat was from rising ground water, not the river flooding. They did not think that relevant protection against this exists.**
 - This is some of the basic attitude that almost leads to apathy in the group. Their homes are damaged, and nothing can be done to prevent it.
- **They think that some work of building breakwaters was started, but that this work has ceased.**

14b. Confidence in existing flood safety measures

- **In Åsnes they are well familiar with the strengthening of dikes. They trust that they can stop ordinary floods, but they are not quite confident that they can withstand a 100-year flood, or a 200-year flood. They worry that the foundations are not strong enough, or that the water may break through under the dams.**
- **They see the dikes as artificial interference in nature, forcing the river off its natural course and actually raising the water level in given situations. But they do not go as far as saying the dikes have a negative effect.**
 - *“We build dikes. This only makes things worse. You cannot just build your way out of danger”*
- **There is one respondent who feels more exposed now than in 1995.**
 - She lives near the end of the tributary-river Flisa, and thinks that the strengthening of the dikes at the Glomma will push the Flisa “upwards”, resulting in large inundation along it.
- **Some respondents point out that securing the tributary-rivers Flisa and Auståa are down prioritized compared to the Glomma itself. They say flood dikes are needed there also.**

15. Private flood preventive measures

- **The respondents do not know what they can actually do as private persons to secure their residences. Both in Flisa and Notodden they seem to focus only on preventive measures from the authorities.**
- **The insurance companies demand certain measures. This is mainly related to limited use of basements or using raised foundation walls when building a new house.**
- **During the conversation in Flisa, they get more aware that they should have some form of emergency plan of their own; what should to be saved first, where to evacuate etc. With one exception in Notodden, they do not have this however, and keep saying “should have...”**

One respondent in Notodden is in trouble. The insurance company will not let her use her basement, and the bank of agriculture will not let her build a second floor...

16. Expectations from the authorities

- **The respondents expect little of the authorities. They see flood as a natural disaster that no one is really responsible of.**
- **In Notodden this view dominates. In the end, the main impression is that the authorities cannot really do anything to help.**
- **This attitude shifts into a tendency of contempt of politicians (and bureaucracy)**
 - *“It is no point in bringing this up. They do not listen to us anyway”*
- **According to the Notodden group the only ones with any real influence is the hydropower companies, and they speculate in the water dam level to optimize their own profits, instead of draining the magazines in time.**
- **In Åsnes the expectations concern being better prepared. There is much criticism to the way the rescue and relief work was organized in 1995. They expect better plans for the next flood.**
 - One woman was strongly critical to the lack of support she got in 1995. She had to evacuate the house. The rest of her family was also affected, so she had nowhere to move. She felt they did not prioritize her because she was single. *“They prioritized families”*

17. Perception of responsibility

- **The respondents do not blame anybody, or keep anybody responsible for floods. It is viewed as a natural phenomenon that no one can control or completely prevent.**
- **As a consequence of this there is little aggression and frustration towards the contribution from the authorities, perhaps less than what one could expect.**
- **As mentioned the group in Notodden have the basic attitude that nothing can be done. NVE is seen as a specialist group that can alert of a flood, but not prevent damage from it.**
- **In Åsnes they have a fairly good understanding of the relationship between Governmental, local and private responsibility.**
- **They point out that in 1995; no one knew who was responsible for deciding on when to break the dikes to control the water. They clearly expect this to be a Central level decision, because of the obvious conflict of interests between different regions on these matters.**
- **The landowners seem to know their duty to maintain the dikes well. When they neglect it nonetheless it is because they prioritize other tasks on the farm.**

18. Need of information

- **Those who live in an area exposed to flooding seem to know about it. They do not need to be told. They know this mainly because of experiences from previous floods.**
- **On the other hand, those who have recently moved in, and have not experienced the last flood, could use more information.**
- **On the whole they find the information given about flood hazard to be sufficient, but they wish, of course, that they were given this information earlier. Particularly in Notodden they seemed to think that an earlier warning could have been possible.**
- **In Notodden they would like more general information about “Ground water flooding”. What is the cause? Risk assessment? How high is the normal water level? Possible measures? They find that today’s information is related to rain and melt water related floods.**
- **In Flisa they would rather have information about the state of the current emergency plans. Clearing this up may provide increased safety and reduce some of the emotional stress they experience.**

18b. Need of information

- **The respondents use flood warnings actively, and know well what sources of information that are available.**
 - They check flood warnings and “notes in the paper about the water level of Tinnsjøen (a lake)”. Primary media seem to be local press and teletext.
- **The group in Notodden was not familiar with NVE’s flood zone maps, but most of the respondents in Flisa were.**
 - But a response to the usefulness of these maps was less clear. They seemed to be more “nice to have” than “need to have”. The most important reason for this is that these respondents knew very well just how exposed their homes were, and because of this, the maps did not provide any new information.

19. Preferred information channel

Internet

- **When it comes to long term time-indefinite information they find Internet to be a very suitable medium.**

Local press and district radio

- **These are also found to be suitable media, for more detailed information and continuous updates on emergency plans etc.**

Teletext

- **Flood warnings on teletext are used as a medium for monitoring the situation and assessing risks.**

Local radio

- **When it comes to situational information local radio should be used. Today, almost every farmer has a radio in his ear-protection flaps when working in the field, and the respondents think that crisis communication should be broadcasted in local radio to a greater extent. Complaints about this were raised during the flood of 1995.**

20. Suggestions for documentary

- **None of the groups are particularly creative when it comes to suggestions of facets and content that deserve to be taken in a documentary.**
- **They want to know what its purpose is first.**
- **A documentary should not be made too narrow and only address those who “see themselves”. They say that in Solør they made a film after “Vesleofsen” in 1995, with just that problem.**
- **The use of amateur videos might work with proper editing.**
- **It is okay to point out negative sides of the 1995 flood, like lack of communication and leadership. The purpose must still be to give adequate information about how the situation is today.**

21. Participating in flood mitigation

In the Åsnes group everybody that lived in the area in 1995 had actively participated in the relief work and rescue operations. This participation was considered:

- **Risky:**

- Several respondents say that they were driving hazardously on the edge of swaying dikes in their tractors, and that it was only by chance that no one was killed.

- **Meaningful:**

- It brought the population closer together, and cultural differences between municipalities and districts were put aside. When Åsnes was saved they travelled south to help in Hof and Grue.

- **Frustrating:**

- They experienced lack of leadership and organization. According to them, the organization was better in Grue, because a former military officer took charge. In Åsnes they lacked “a strong leader”
- A woman in the group had made a great effort and cooked for the mitigation force continuously for several days. She did not find that this type of contribution was equally appreciated compared to manual labour on the dikes.

21b. Participating in flood mitigation

- **There is no doubt that the respondents from Flisa are mentally prepared to work on the dikes again, if a similar situation arises.**
- **They expect better organization, not to be relieved from work.**
- **Two respondents in Åsnes also sit in the flood barrier board. This is also a way to take responsibility for the preventive part of flood safety. They point out that the general interest in this work is low. Few attend their annual meetings.**
- **After the 1995 flood it was decided to create an overview of available resources, but this registration process have halted, they say.**
- **Neither of the groups thinks they have information or experience the authorities do not already know about.**
- **In Notodden the question of active participation in preventive work is too abstract. It represents the same defensive attitudes they have for the entire subject. They have the will to work, but they do not quite know what and how.**

Reports from FLOWS project 2A:

WP 2A -1: Perception of Flood Hazard in Countries of the North Sea Region of Europe

Author: Irina Krasovskaia, Norwegian Water Resources and Energy Directorate (NVE)

WP 2A -2: Expert panel study

Author: Irina Krasovskaia, NVE, Norway

WP 2A -3: Qualitative studies of the public's comprehension of flood risk Case studies from the UK and Norway

Author: Melita R. Hasle, NVE, Norway

WP 2A-4: Combating flooding together

Authors:

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WP2A-5: Interactive Learning Groups

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