

# EXPLORING PROTECTION MOTIVATION IN WILHELMSBURG (HAMBURG): IS THE RISK 'REAL' TO THE PEOPLE OF THE ELBE- INSEL

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## ABSTRACT

*Estimated increases in sea level and flood frequency due to climate change, has caused Flood Risk Management to acknowledge the limitations of structural flood defences. Flood Risk Management is now focusing on the need for public participation in flood protection. There is now a need to better understand what motivates or demotivates urban communities to prepare. Wilhelmsburg is a large river-island situated in Hamburg. Although the last big flood was in 1962, there is growing concern over increases in future flood risk to the island. In late 2011, residents of Wilhelmsburg were interviewed to determine their preparedness motivations. It was found that the lack of flooding experienced by the island since 1962, and the high reliance on the city and the dikes, has created a system in which vulnerable communities have low motivation to personally prepare. The results suggest that in Wilhelmsburg there is a low level of flood readiness, and even lower interest or perceived need to undertake personal preparedness efforts. This stand to impact the resilience of the island's inhabitants and place excess demands on external sources for aid and support in the event of a flood.*

## KEYWORDS

Flooding, risk perceptions, protection motivation, Wilhelmsburg

## 1. INTRODUCTION

Floods are an outcome of social processes and structures interacting with environmental extremes. Such interactions may be observed to result in extreme costs and damages (Burton et al., 1993). The threat of damages to property, enterprise and human life, due to flooding, is intensified in urban centres, where there is a high concentration of society, infrastructure and economy (Pelling, 2003; IRFC, 2010). Societies that are exposed to flooding be it in developing or developed contexts have to establish strategies or actions (adaptions) for coping with or reducing the negative impacts of flooding (Kates, 1963; Few, 2003). One broad distinction or classification of these strategies is between 'structural' and 'non-structural' (Few, 2003). Structural strategies usually refer to physical, engineered interventions such as: river channel modifications, embankments, reservoirs and barrages and modified drainage systems (i.e. land elevation, levees, flood embankments, channel alterations, development of dams and reservoirs) (White, 1945). Interventions designed to halt and/or abate the flow of water and control the spread of flooding (Few, 2003). Non-structural measures are typically designed not to prevent floods, but to reduce the short and long-term impacts of the hazard (Few, 2003).

The limitations of structural defence measures are becoming more and more evident in the context of shifting economic situations, and estimated increases in sea level and flood frequency (and magnitude) due to climate change. This awareness has drawn attention to the growing importance of non-structural mitigation measures, and specifically those that private households and residents can adopt for themselves in order to participate in their own flood protection and preparedness (Terpstra & Gutteling, 2008). The collections of self-protective activities that people implement to lessen the impact of a hazardous event are referred to as 'preparedness' measures (Mishra & Suar, 2007). Preparedness measures undertaken by vulnerable communities and individuals have been found to diminish the extent of actual damage (compared to potential damage) experienced (Grothmann & Reusswig, 2006; Terpstra, 2009). Within this context the need to better understand the processes and factors that influence and/or motivate vulnerable individuals to prepare for potential floods is growing.

The nature of the experience (i.e. time, frequency, extent of event/s, outcomes of event) individuals and communities have of flooding has a significant influence on their knowledge of the risks associated with it (Weinstein, 1989), and assessment of those risks in terms of preparing and protecting themselves from them (Lindell et al., 1997; Grothmann & Reusswig, 2006; Terpstra, 2009; Peters-Guarin et al., 2012). In areas where floods are not new to people, they will work out their own methods for protecting themselves and their livelihoods, such adaptation is often considered as a form of 'indigenous knowledge' (Twigg, 2004). However, in areas where floods are not a regular experience, the knowledge required to be able to prepare and cope for them may also be lacking. The historic reliance on structural defences has created the situation in many areas where the abatement of floodwaters has also reduced the coping knowledge of vulnerable communities. Slovic et al. (1981) describes how with the lack of direct experience, people's perception of risk is left open to the judgement bias generated through media, perceived sense of personal immunity, and personal complacency. Such bias in turn results in a lack of motivation to prepare. Even with the resources available and the skills at hand to use those resources in such a way as to implement coping mechanisms that can reduce the risks posed by a potential flood event, without the motivation to act a social system will not be prepared to withstand a flood, and their resilience to such an event greatly diminished. The question of what influences peoples' motivation to act and prepare in the face of a potential threat be it from nature or technology is one that has been present and investigated for several decades (White, 1945; Starr, 1969; Fischhoff et al., 1978; Douglas & Wildavsky, 1982; Tversky & Kahneman, 1982; Kaspersen et al., 1988; Burton et al., 1993; Slovic, 2000; Terpstra, 2009; Slovic, 2010).

A number of attitude-behaviour or behavioural intent theories make up the research and literature behind this topic these include: the theory of Reasoned Action (Fishbein & Ajzen, 2010); Person-Relative-To-Event (PrE) Model (Mulilis & Duval, 1995); Protection Action Decision Model (PADM) (Lindell & Perry, 1992); and Protection Motivation Theory (PMT) (Rodger, 1975). A principal variable these theories aim at informing, in the process of influencing individuals behavioural choices, is risk communication (Rodger, 1975; Lindell & Perry, 2004; Terpstra, 2009). Risk communication is considered to be the principal factor influencing and/or initiating protective-action decision making within communities that do not experience frequent flooding (Terpstra, 2009). Why people do not heed risk messages or become motivated to take protective actions has been found to be linked to how people perceive the risk to start with (Slovic, 2000). PMT was initially developed by Rodger (1975) to investigate how fear appeals within risk communications generated motivation to prepare amongst people hearing the risk message. The theory was based on the fear-drive model that suggests that fear is a driving force in motivating trial and error behaviour (Norman et al., 2005).

The use of PMT has been largely confined to research regarding motivation to protect around health issues (Norman et al., 2005). However, a recent study done by Grothmann and Reusswig (2006) utilised an adapted version of PMT to assess the motivation flood-vulnerable residents in Cologne, Germany have to prepare for future floods. Their framework puts forward that before an individual forms a decision or intention to act, they must first be motivated to do so. *Protection motivation* does not necessarily lead to action, as barriers (*actual barriers*) such as: lack of resources, money, knowledge, time or social capital can influence individuals ability to take protective responses; however, individuals with motivation to prepare can be considered more likely to take protective responses. Protection motivation is in turn influenced by the measures of: threat appraisal, coping appraisal, threat experience appraisal and reliance on public flood protection, as well as the presence of non-protective responses (e.g. denial, avoidance). *Threat appraisal* equates to risk perception and describes the individual's assessment of a threat's probability and severity (damage potential). *Coping appraisal* relates to their assessment of their own ability to cope or avert damage/harm. *Threat experience appraisal* involves the assessment of future severity of a threat based on past experience, and reliance on public flood protection describes the degree to which an individual trusts in or has confidence in state or city authorities and/or structural defences (implemented by these authorities) to protect them. Grothmann and Reusswig (2006) found that their hypothesized relations between the main measures: threat appraisal, coping appraisal, threat experience appraisal all correlated positively with protective responses (i.e. motivated residents to take protective action). Reliance on public flood protection and non-protective responses correlated negatively with protective responses (i.e. reduced motivation to carry out protective actions).

Wilhelmsburg in Hamburg, Germany represents a case in which structural defence (chiefly ring dikes) has abated flood experience amongst its residents; however, future climate change projections have

identified potential limitations in these defences, and the need for residents to take greater responsibility of their flood preparedness has increased. This study utilised Grothmann and Reusswig's (2006) PMT framework in the qualitative assessment of residents' current motivation to prepare for potential future flood events. It was not the intent of this study to test the relational aspects of this framework through a quantitative test of correlation, instead its aim was to use it as a guide in assessing qualitatively and therefore, in more contextual depth how the measures within this framework are evident in residents' responses around their views on flood risk to Wilhelmsburg and preparedness for it.

## 2. METHODOLOGY

In order to explore how residents in Wilhelmsburg perceive flood risk and the need for personal preparedness a qualitative research design was employed. Qualitative research is inductive and descriptive, focusing on determining informants' meaning and understanding of a phenomena (Merriam & Muhamad, 2002). Traditionally PMT investigations have employed quantitative psychometric approaches and looked at relationships between the different theory components (threat appraisal, coping appraisal etc.) (Grothmann and Reusswig, 2006) and/or factors that influence these components (e.g. experience, age, ethnicity, trust etc.). As the objective here was not to test the relationship between the components but to utilise the components as thematic guides around which flood risk perceptions and protection motivation could be explored, a qualitative approach was selected.

In-depth semi-ethnographic interviews guides were developed based on Spradley's (1979) ethnographic interview and question construction. Significant adaptations from Spradley's (1979) processes included a limit of one interview with each informant, due to time and resource limitations. The interview guide was piloted with two informants from Wilhelmsburg prior to commencing the study. Aspects such as interview length, response of informants to certain questions and the process, and reception of question meaning or phrasing were assessed and the interview guide and questions refined.

Informants were selected based on the criteria that they, at the time of the study (Oct-Nov 2011), reside or work in Wilhelmsburg. Only those who were of legal age to give consent to participate without a guardian being present were considered (for the study 18 years and up). Similarly any one who had mental or physical disadvantage/s, which meant they could not legally give consent were not considered. This was done to limit the need to re-adapt the interview guides for younger informants, and avoid the potential of alarming or causing any form of concern in a minor (although the questions were not designed to be alarming) or anyone who may perceive more from the topic as the issue of flood risk was explored with them, and be unduly alarmed by it. In total the sample included 28 informants, the majority being of German descent and three informants coming from immigrant backgrounds (Turkey and Iran). A snowball sampling method was utilised to identify willing informants. All efforts were taken to ensure maximum variation in gender and in the end 14 male and 14 female informants were interviewed. The youngest informant was 23 years old and the oldest were 70 years old, the average age was 48 years old. Informants ranged from a variety of educational backgrounds, but all indicated they had finished secondary school; several held university degrees or were in the progress of obtaining them. All informants were from middle class backgrounds, 25% of informants had experienced the 1962 flood, which represented the only direct flood experience within the sample. Four informants had experienced the 1999 earthquake in Turkey.

Interviews lasted for an hour and 10 minutes on average. Interviews were facilitated through the aid of a bilingual interpreter so that informants could respond in their native language. Informants were encouraged to talk around topics related to their flood awareness and threat appraisal, their views on and trust in the city's public protection structures and plans, their belief in how they would respond if a flood were to happen and the protective or precautionary measures they had (or hadn't) adopted. Interviews were then first transcribed by a bilingual research assistant, and later translated into English by this assistant. Analysis of interviews acknowledged the potential loss of meaning that may have occurred through the translation process, and did not involve any discourse or word analysis. Basic applied, interpretive, thematic analysis (Guest et al., 2012) was utilised in developing description within the various themes of 'threat appraisal', 'coping appraisal', 'threat experience appraisal',

reliance on public flood protection', and 'protection motivation' (as described by Grothmann and Reusswig, 2006).

### 3. FINDINGS

#### 3.1 Threat appraisal

Informants did not perceive flooding to be a threat to Wilhelmsburg. They gave two main reasons as to why flooding was not a threat. First the dikes are perceived as effective protection against floods; and second flooding is not seen as a threat 'at the moment', but in the future and with climate change it might become one. One informant did perceive flooding as a threat, because he believed that the low perception of flood risk amongst Wilhelmsburg residents, and the growing complacency by city authorities, emulated the conditions leading up to the events of 1962 - "*Because it's the same problem as before 1962... and so people did not realise that there was a real danger, because they couldn't remember anything, any damage to the dikes or any breakings. So the normal Deichschau (dike show)... They look to for the goodness of the dikes and they drank a lot of alcohol and found everything well. So they didn't take their work serious. And I think that's nowadays again the situation.*" (P28). A couple of the informants from immigrant backgrounds perceived the possibility that flooding could be a threat, but indicated that they were unsure or couldn't predict the situation - "*its possible that the dikes theoretically might break again and that its possible that something might happen here again*" (P17). However, most informants do not see flooding as a threat, and consider it to have a very low probability of happening "*I think since the safety measures are in such a scale, there is no longer the threat or the possibility that I could think of, and therefore, I don't need to worry about it.*" (P2).

Informants, who considered there to be no threat of flooding, saw situations that might increase their vulnerability to flooding as threatening. Climate change is a significant concern among informants, especially as it may affect them through the melting of poles and estimations in sea level rises - "*What is the problem is climate change and we have to look what we are doing for it...*" (P20). It appears that fears related to what may happen in the future in regards to global warming are real to the informants, and may be creating some motivation for informants to explore options on how best they can protect themselves, their families, property and belongings.

Another aspect informants perceive as being a 'real' threat is the dredging and narrowing of the Elbe - "*the next threat I see in the dredging of the Elbe...*" (P6). Dredging of the river did carry significant levels of concern for the informants, specifically Old Wilhelmsburgers who have lived on the island for over 20 years and most often have had several generations of their family live on the island. The final 'real' threat perceived by informants relates to the condition of the dikes. Points identified by informants as being a concern included poor maintenance of the dikes and limitations to the protective ability or height of the dikes.

#### 3.2 Reliance on public flood protection

Reliance on public flood protection looks at the degree to which informants place trust and confidence in external factors to provide protection from potential flood impact. These external factors can include reliance on city authorities, local NGOs or charity aid organisation and/or structural defences. Two components of public flood protection stood out in informants' responses: 'the dikes' and 'the City'.

##### 3.2.1 'The Dikes'

All informants indicated that the dikes were an important part of their sense of safety on the island. In terms of informant's responses around reliance on the dikes, two aspects were identified as providing 'evidence' to justify their reliance on the dikes. The first involves the clear and visible presence of the dikes in everyday life in Wilhelmsburg - "*... I see dikes everywhere surrounding the district...*" (P22); "*Protection seems very good now, I mean there are dikes everywhere*" (P12). The second relates to the knowledge informants have about the structural improvements that have been made to the dikes, specifically that since 1962 they have been raised significantly (raised from a level of 5.20 m to between 8.00 and 9.30m, von Storch, 2008), and prevented impact from larger storm surge events (in 1976) since then.

Informants have trust in the dikes, this trust involves on the one side that they can continue to be adapted (raised) to protect against future storm surges in spite of the influence of climate change on them and sea level - *"And I think the Hamburg government is going in next year to make a ...we are going 80cm higher."* (P20). On the other side they have great trust in the belief that the dikes are built well *"I trust that the dikes keep up, they [the dikes] were raised in the course of time and we aren't afraid"* (P25).

### 3.2.2 'The City'

'The City' refers to the city authorities (die Behörde) in charge of preparing Wilhelmsburg (and Wilhelmsburg) in case of an emergency (Behörde für Inneres & Besirkamt Hamburg-Mitte) and those authorities in charge of maintaining the dikes and structural 'preventative' defence measures (Behörde für Stadtentwicklung und Umwelt and Landesbetrieb Strassen, Brücken und Gewässer). Interestingly although, none of the informants knew which organisation or government department did what in terms of planning around their flood preparedness, all indicated that 'the City' was a source of safety for them. A number of aspects concerning why 'the City' significantly adds to informants' sense of safety were identified, informants found security in 'the City'('s):

- Being prepared for a flood - *"The only part of Germany we have filled sand bags here nearly in Wilhelmsburg 80,000 sand sacks and the only part of Germany where we have filled one."* (P20);
- Watching over the dikes - *"...they take good care of them [dikes]"* (P14); and
- Success from their improvements to the dikes - *"calm with the improvements made to the dikes"* (P5).

Relating to this sense of safety obtained from 'the City's' actions informants' reliance on them is coupled with their trust that 'the City':

- Have prepared for the potential of a flood in Wilhelmsburg - *"Hamburg is well prepared..."* (P22);
- Is responsible for the looking after the dikes and are doing a good job - *"I trust ... and the people responsible are doing their job right"* (P2);
- Will inform and are informing residents of Wilhelmsburg about the flood risk and what to do if there is a flood - *"For 1962 there was no information and no media culture like we have now. So it would no problem to get informed if there's some risk or anything."* (P14); and
- Has the technology to protect them - *"There has to be development with the dikes, but its manageable, technology and money will solve it"* (P23).

### 3.3 Threat Experience appraisal

The majority of informants (71%) did not experience the 1962 flood event (N=28). Four informants, who did not experience 1962 flood, had experienced the 1999 earthquake in Turkey. Although most informants did not have direct flood experience to rely on in their appraisal of the threat of flooding to Wilhelmsburg, they did make use of other experience to describe their appraisal of the flood threat, Table 1 shows the different experiences being utilised by informants to assess events relating to a future flood.

### 3.4 Coping appraisal

In spite of their lack of direct experience, there was a high estimation or confidence in their own ability to cope should a flood happen. This confidence was connected to three main aspects: awareness of personal vulnerability to flooding, they having an emergency plan, and confidence in themselves. Awareness of personal vulnerability to flooding involved informants' awareness of areas in Wilhelmsburg that are most at risk (i.e. low-lying areas) and that their flats were located above the perceived flood level. Given their location in respect to this awareness informants believed that they

Table 1. Informants' assessment of potential events (in the case of another flood), based on alternative experiences.

Alternative Experience	Potential Events
<p><u>Previous call for flood evacuation:</u> Confidence in being well informed. Confidence in neighbours support.</p>	<p><i>"Well I always think that the people are quite well informed about where they have to go...The last time, we just had moved in a new flat, the last time 7 years ago. They had an evacuation...They said, the flood would further rise and they would kindly ask us to prepare to be evacuated. We lived through that... I wasn't afraid"</i> (P10).</p> <p><i>"In 2006 I was in Cologne. I went there on my own. There was a storm surge and there were warnings and my German neighbours helped my family upstairs, everyone does that"</i> (P22).</p>
<p><u>Indirect experience:</u> Awareness of the historical conditions behind 1962 flood. Awareness of the impacts of the flood.</p>	<p><i>"... we heard... of old people mostly dying and people being rescued, pulled out of their houses. I know that people, more in poor living quarters, I mean it was also post-war it was still something, not everything was up to scratch, and well the 60s was it still underdeveloped from today's conditions, undeveloped. Also a gypsy village was also badly affected. And you can see everywhere the marks people have on their houses 1962, which water level..."</i> (P2).</p> <p><i>"Because I know that was really, this is something I met lots of people that were living here with the flood in 62. The worst thing was that they didn't have anything to drink. Ja, water is important"</i> (P7).</p> <p><i>"I myself wasn't there, I was on holidays, but I can tell about my parents, about my siblings and my girl friends. I asked them how they experienced it and it started in the night ... neighbours had woken them up. And the father put the children in the car, the water went already to the doors of the car, and they drove away to Veddel. And on the opposite side, they have also seen this, a woman with her baby went on the roof and slipped down and drowned in the water"</i> (P25).</p>
<p><u>Bomb evacuation/s:</u> Authorities actions Community responses. Likelihood of confusion.</p>	<p><i>"After I saw that with the bomb, I mean come on, they [the authorities] went around with a car. They announced in German and Turkish, and another language that I didn't know that what was happening. So I think, when a flood is about, you know, they are quite early and not so late anymore. They would do the same thing, go around with the car and announce...well if people react the same way..."</i> (P1).</p> <p><i>"There was a bomb threat here. They were clearing a bomb, second-world war bomb here, and as a reason the whole area had to be evacuated – when they were diffusing the bomb. And you could see, that they [the residents of Reihersteig] were all sitting in the park there and there was something kind of... people who usually don't meet or don't talk to each other kind of had a common experience and were talking with each other."</i> (P2).</p> <p><i>"They [the residents of Reihersteig] would remain sitting here. ...in May... they found a bomb here. They found a big bomb here. It took them 4 hours to evacuate the people, because they always came back. All those drunks at the corner shops. They said 'What do I care about a bomb?'"</i> (P18).</p>

*"First of all there's probably lots of people that don't know what's happening, because I remember when we had this bomb thing they... they [the authorities] went around here and announced with loudspeaker but only in German and in Turkish. They didn't even to English or French, which would have been smart because all the African people speak either English or French. That would be a smart move for instance. So there was lots of people that didn't know what was going on." (P7).*

would be safe. Only one informant indicated having an emergency plan established with his wife *"Actually that is agreed upon and my wife knows it and I have my first aid box at home, I have the emergency supplies, I have a torch, candles that's important if the light is off. Actually that's sufficient, what else should we do?" (P8).* Confidence in their own abilities to adapt and or cope included such aspects as belief in not being alone, belief that given enough warning they could prepare affectively; belief in own abilities to get by; and knowledge that during times of stress they tend be able to keep a level head - *"I don't know if I would have those nerves. But usually I'm much better in disaster situation than I am, if everything is calm and easy, you know?" (P15).*

To explore this confidence further, some informants (N=17) were asked about whether they considered themselves prepared for a flood. Eight informants indicated they did feel they were prepared, six indicated they were not, and the remainder (3) held mixed views, indicating that in respect to certain aspects they felt prepared, but for others they did not. For those who indicated that they did feel prepared, location was again a factor *"I'm living on the fourth floor..." (P2).* Confidence in own ability to get information and know what to do in the event of a flood also featured, as did the undercurrents of faith in public flood protection *"actually I think we are quite well prepared" (P12).* Lack of perceived threat was cited as the prime reason informants didn't feel they were prepared or had to prepare *"...I don't see the threat" (P3), "I never worried, or never was afraid that it might happen..." (P25), "...well for me it's very far away..." (P27).*

#### **4. PROTECTION MOTIVATION & IMPLICATIONS FOR PREPAREDNESS IN WILHELMSBURG**

Flood risk is an academic, removed ('it doesn't affect me') topic, which holds very little (to no) emotional association to residents of Wilhelmsburg. Because of this flooding is not a 'real' threat to the people of the island, instead it is an issue connected most closely to climate change, which is of itself a topic with no set duration or sense of immediacy. The effectiveness of the dikes in keeping the island safe has had a profound effect on local perception of flood risk. Because the dikes essentially act in preventing floods being experienced by or becoming an issue to residents, residents have developed an innate reliance on them. The dikes in many ways act as walls that eclipse or hide daily awareness of Wilhelmsburg as an island in the Elbe. Daily comings and goings on the island include few glimpses of the river and water, and have over time created an atmosphere of safety without the awareness of the issues islands traditionally face. In-deed, discussions with a representative from IBA (Internationale Bauausstellung), whom had carried out a survey of opinions concerning the dikes for their Deichpark project (IBA, 2011), revealed that most of those surveyed were not even aware that they lived on an island (sample size unknown). The same finding was not true for the current study, but does add to the debate about how removed from the island reality the inhabitants of Wilhelmsburg are, principally because of the dikes

The findings regarding PMT measures looked at for the informants in this study, indicates a negative influence on the motivation to prepare; Table 2 provides a summary of these findings. The direct experience that still exists in the community and the awareness of the flood history are still influencing risk perceptions (threat appraisal), which leads to the belief that being prepared is necessary, however does not motivate informants to carry through with this belief beyond either investigating options, or reading the emergency pamphlet (supplied by the City). Some coping appraisal is happening which suggests that in spite of their low threat appraisals they are being influenced by risk messages and

historical knowledge and/or sense of personal responsibility to think about what their options are to protect themselves and their belongings. Although belief in there being options is high, aspects such as high costs or lack of availability as in the case for flood insurance is reducing informants perceptions in their ability to cope.

Table 2. PMT assessment for Wilhelmsburg informants ('-' = reduced motivation; '+'=increase in motivation).

Perceptual process	Finding	Response indicated	Affect on Preparedness Motivation
<b>Threat Appraisal</b> (or risk perception):	Low	/	-
Perceived Probability	Low	/	-
Perceived Severity	High	Non-protective	+
Fear	Low	Non-protective	-
<b>Coping Appraisal:</b>	Low	Non-protective & protective (attended workshops & read emergency pamphlet)	- (+)
Protective response efficacy	Low	Non-protective	-
Perceived self-efficacy:	High	Non-protective	-
Protective response costs	Low	Non-protective	-
<b>Treat Experience Appraisal</b>	Low (indirect)	/	- (+)
<b>Reliance on public flood protection</b>	High	/	-

Overall, protective motivation is found to be low in Wilhelmsburg, with informants indicating a lack of motivation to undertake adoption of flood disaster adjustments that would reduce damage to their property and their selves should a flood event happen in Wilhelmsburg. Although motivation to prepare is low, and very little actual protective responses are being undertaken (mostly attending awareness workshops and/or reading emergency pamphlet sent out by 'the City'), and in spite of a dominant lack of perception of flooding as a 'real' threat to Wilhelmsburg, there is a perceived need to prepare in case of future events. This awareness is leading to informants thinking about the issue, and beginning to assess their ability to cope in the face of a flood (most often compared against indirect experience knowledge about the 1962 event obtained through interaction with survivors, media sources and environmental clues - flood marks and memorabilia). At present, informants are utilising non-protective responses like 'postponement of problem' and 'not thinking about it', to avoid worrying about the issue.

Risk communication by the City, and through environmental clues like the 1962 flood marks, does seem to be influencing informants' appraisal of the situation in regards to potential flooding. However, the strongest risk message being received relates to climate change more than flooding. Unfortunately, this message contains strong elements of uncertainty around what might happen in the future, and this uncertainty creates room for postponement of the need to be currently concerned about the issue. When the issue is then aligned with flood risk and impact, informants appears to be postponing the need to see flooding as an imminent threat that needs to be prepared for now. It also appears that flood-related risk communication is not dynamic enough to sustain itself in the community, which without experience has an increasing lack of interest in the topic - "...No, I never concerned myself with it" (P19); "I wouldn't say that is a topic that I'm really so interested in" (P21); "I don't know when was the last time I was thinking about it?" (P17).

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