# Why people don't behave as we would expect

## The role of emotions, unrealistic optimism and previous experience in disaster preparedness

Katie Harris
SCR Think Piece

## Collaborate

Strengthen collaboration and integration between diverse stakeholders working on disasters, climate and development

To what extent are climate change adaptation, disaster risk management and development integrated across sectors and scales? How are organisations working on disasters, climate change and development collaborating?

## Experiment

Strengthen the ability of people, organisations and networks to experiment and innovate

How are the institutions, organisations and communities involved in tackling changing disaster risks and uncertainties creating and strengthening opportunities to innovate and experiment?

## Challenge

Promote more socially just and equitable economic systems

How are interventions challenging injustice and exclusion and providing equitable access to sustainable livelihood opportunities? Have climate change impacts been considered and integrated into these interventions?

## Assess

Periodically assess the effects of climate change on current and future disaster risks and uncertainties

How is knowledge from meteorology, climatology, social science, and communities about hazards, vulnerabilities and uncertainties being collected, integrated and used at different scales?

## Learn

Promote regular learning and reflection to improve the implementation of policies and practices

Have disaster risk management policies and practices been changed as a result of reflection and learning-by-doing? Is there a process in place for information and learning to flow from communities to organisations and vice versa?

## Advocate

Forge partnerships to ensure the rights and entitlements of people to access basic services, productive assets and common property resources

What networks and alliances are in place to advocate for the rights and entitlements of people to access basic services, productive assets and common property resources?

## Integrate

Integrate knowledge of changing risks and uncertainties into planning, policy and programme design to reduce the vulnerability and exposure of people's lives and livelihoods

How is knowledge about changing disaster risks being incorporated into and acted upon within interventions? How are measures to tackle uncertainty being considered in these processes? How are these processes strengthening partnerships between communities, governments and other stakeholders?

## Be flexible

Ensure policies and practices to tackle changing disaster risk are flexible, integrated across sectors and scale and have regular feedback loops

What are the links between people and organisations working to reduce changing disaster risks and uncertainties at community, sub-national, national and international levels? How flexible, accountable and transparent are these people and organisations?

## Empower

Empower communities and local authorities to influence the decisions of national governments, NGOs, international and private sector organisations and to promote accountability and transparency

To what extent are decision-making structures de-centralised, participatory and inclusive? How do communities, including women, children and other marginalised groups, influence decisions? How do they hold government and other organisations to account?

## Inform

Increase access of all stakeholders to information and support services concerning changing disaster risks, uncertainties and broader climate impacts

How are varied educational approaches, early warning systems, media and community-led public awareness programmes supporting increased access to information and related support services?

## Plan

Plan for uncertainty and unexpected events

What activities are being carried out to support the capacity of governments, communities and other stakeholders to plan for and manage the uncertainties of future climate and development events? How are you building capacity through exercises, systems and training to create integrated plans?

## Develop

Promote environmental sustainability and low carbon development

How are interventions protecting and restoring ecosystems and to what extent is renewable energy being promoted, to enhance resilience? How is the mitigation of greenhouse gases being integrated within development plans?

# Contents

# Abstract

Why people don't behave as disaster risk management practitioners and policy makers would expect in times of crisis is often attributed to what are perceived to be 'commonsensical' explanations such as lack of access to information, lack of analytical skills, capacity or resources, or poor judgement based on misinformation. This paper challenges the 'commonsensical' and contributes to a growing body of research which argues that Disaster Risk Management (DRM) fails to pay adequate attention to the underlying assumptions that presume certain behaviour will result from the implementation of a DRM policy or programme.

Focusing on contributions from social psychology to better understand what motivates, influences or steers the behaviour of individuals, this paper seeks to introduce disaster risk managers to new concepts that they may not have otherwise come across. Structured around the themes of emotions, unrealistic optimism and previous experience, the concepts introduced in the paper include territorial functioning, unrealistic optimism, memory bias, evaluability and risk compensation. The paper includes a consideration of some of the methodological limitations of the research presented under these three themes, the implications for DRM, and conclusions, which point towards the need for a greater consideration of the role of culture in DRM. These concepts, it is hoped can provide insight into better understanding why people don't behave as we would expect.

## What does the role of culture mean for Climate Smart Disaster Risk Management?

There has been substantial academic interest in the role of culture in relation to disasters and climate change. There has been less focus on the intersection of culture with climate change and disasters, not least because the two communities are at an incipient stage in understanding what the Disaster Risk Management (DRM) and climate change nexus looks like in practice. The Climate Smart Disaster Risk Management (CSDRM) approach is at the forefront of this thinking and the consideration of culture provides new insight into a complex set of issues.

Our cultural backgrounds and contexts significantly influence the way we think and act and thus is inseparable from all stages of the development process. What tends to be the focus of discussions on culture is the culture of those communities we are trying to help. For the Strengthening Climate Resilience (SCR) programme, culture is recognised as an important component of understanding a context in which CSDRM may be applied and implemented. In the guidance to operationalising CSDRM (Harris et al., 2011), this involves understanding communities' values, priorities and ways of being. However, even with recognition of the need to take culture seriously, this is not easy: not least because culture is inherently complex and difficult to analyse objectively, but also because there are further challenges in trying to analyse one's own culture. It is not the intention to explore the debates regarding the methodological validity of who is best placed to study culture here - an insider or outsider, for example - but important to note that such debates exist. What can be highlighted here is the recognition that cultural influences are an important and intractable part of any context within which CSDRM may be applied, influencing interpretations of risk and disaster and factors such as memory and motivation.

# 1. Introduction

Disaster risk management (DRM) practitioners and policy makers have been grappling with this challenge: whilst their efforts to reduce disaster risk can and do save millions of lives and livelihoods across the globe, the risks they are trying to address are largely downplayed by the communities they work with, coming relatively low down on their list of priorities. With climate change set to increase the frequency, intensity and also the unpredictability of some natural hazards, disaster risk being a low priority is likely to become a more urgent problem. Compounding this is the reality that, in many situations, those at risk do not behave as the DRM sector would expect, or would like, individuals to behave.

Why people don't behave as disaster risk reduction practitioners and policy makers would expect in times of crisis is often attributed, in part, to what are perceived to be 'commonsensical' explanations such as lack of access to information, lack of analytical skills to know what to do with that information, lack of capacity or resources to take action, or poor judgement based on misinformation. The 'logical' solution to address these issues is improved DRM: more sensitisation, training, or improved manuals and toolkits. In contrast to much of the literature, this paper doesn't seek to understand how to 'make' people behave as we would expect, i.e. by framing this as a problem for disaster risk managers in the sense that there is a failure to communicate or enact the 'appropriate' risk reduction behaviour. Instead this paper seeks explanations for why people don't behave in the way we would expect and the implications of the current framing of preparedness and response to disaster risk as employed by the DRM sector.

Unless the DRM sector recognises that the mainstream framing of disaster risk (which is in itself negotiated, contested and by no means homogenous) fails to pay adequate attention to the underlying assumptions that presume certain behaviour will result from the implementation of a programme, DRM will be left wanting. There will continue to be a disconnect between what Cannon (2008) refers to as 'insiders' and 'outsiders', referring to recipient communities (insiders) and people from organisations external to the recipient community who are implementing DRM interventions (outsiders), and the continuation of the interpretation that DRM programmes are failing to achieve the intended outcomes, when in fact there are more fundamental and complex issues at play. Furthermore, this challenge will be compounded as climate change adds new pressure on the DRM sector to deal with situations and scenarios beyond their previous experience; not forgetting that climate change brings with it a whole new complex milieu of cultural understandings, interpretations, scepticism, challenges and priorities.

The aim of this paper is to introduce disaster risk managers to new concepts that they may not have otherwise come across, such as territorial functioning, unrealistic optimism, memory bias and risk compensation. It is hoped this will provide stimulus for policy makers and practitioners to explore the relevance of these concepts in their own contexts and, in doing so, provoke new ways of approaching, framing and thinking about DRM.

This paper thus contributes to the growing body of literature from both the disasters and climate change sectors which reveals a much more complex and nuanced understanding of why people don't behave as we would expect (for examples, see Bankhoff, 2003; Shipper, 2010; Whitmarsh, 2008).

### 1.1. Background to the paper and a caveat from the author

This paper stems from a growing recognition of the significance of culture in DRM within academic and practitioner circles. In July 2011, the author attended the ZiF Research Group workshop in Bielefeld, Germany, on the topic 'Cultures and Disasters'. Coupled with findings from the Strengthening Climate Resilience (SCR) programme (that this paper contributes to), this provoked a more thorough focus on the role of culture in both disasters and climate change. In line with the SCR programme approach, this paper employs interdisciplinary thinking. The paper seeks to deepen our understanding of complex issues around the significance of culture for DRM to inform future work dealing with the impacts of climate change, in order to actively seek 'intelligence' beyond our usual frames of reference, disciplinary backgrounds and sectoral specalisms.

This paper focuses on social psychology as one of many possible ways of applying a new lens to better understand what motivates, influences or steers the behaviour of individuals. It is a discipline that is largely ignored in mainstream DRM. It is necessary to point out that the author does not have a background in social psychology but nonetheless attempts here to unpack the relevance of social psychological literature for others that are unfamiliar with the discipline's potential contributions to disaster risk research.

What is presented in this paper draws on a desk-based review of selected academic literature. It does not present a full and thorough literature review, nor does it cover all the possible contributions from the field of social psychology in relation to disaster risk research or the topics of interest to this paper including emotions, unrealistic optimism and previous experience. The intention is to present relevant literature which may encourage wider engagement with aspects of social psychology that are highly relevant to DRM, but often overlooked and thus fail to inform disaster risk reduction programming and policy making.

Social psychology has much to offer in terms of thinking about why people behave in certain ways in disaster situations. A limitation, as readers will notice, is that research has been predominantly based on Western case studies: the relevance and application of social psychology findings to other contexts should therefore be treated with some caution. Moreover, the methods employed by the discipline to understand behaviour contrast quite substantially to those conventionally used in the disaster sector. In order to take account of this, a section of this paper is dedicated to methodological issues. Despite these limitations, three topics explored largely by social psychologists in the context of disasters have been chosen for discussion in this piece because of their relevance to DRM: emotions, unrealistic optimism and previous experience.

In the next section the paper explores the role of emotions, unrealistic

optimism and previous experience, followed by a consideration of some of the methodological limitations of the research presented under these three themes. In the third section the implications for DRM are discussed, followed by conclusions which point towards the need for a greater consideration of the role of culture in DRM.

# 2. Emotions, unrealistic optimism and previous experience

### 2.1. The role of emotions

*'People are likely to spend less time picturing the affective consequences of an improbable event than the affective consequences of a probable event'*
Siegrist and Gutscher (2008: 772)

Increasingly, researchers have been calling for a greater consideration of the role of emotions in risk research and in particular the role of emotions in disaster preparedness. This is an area of study more common to post-disaster situations, where a great deal of research has been conducted on the psychological effects of disasters[1]. Growing empirical research suggests that both perceptions of risk and preventative behaviour are influenced by the emotions of past experiences (see Slovic *et al.*, in Siegrist and Gutscher, 2008: 772). Undertaking research on severe floods in August 2005 in Switzerland, Siegrist and Gutscher (2008) identified emotions as one of the most influential factors affecting preparedness.

Their findings point to the ability of those previously affected by floods to recall the negative emotions associated with the experience, thus motivating them to take preventative action. In particular, the ability to recall feelings of uncertainty and insecurity were most influential. Conversely, those not affected by experiences of floods rarely cited negative emotions, such as fear and helplessness (emotions that were cited frequently by those affected) as consequences of a flooding experience (Wagner 2004, in Siegrist and Gutscher 2008: 776).

Understanding the role of emotions is important not only for a better understanding of why people may or may not take the initiative to become better prepared for disasters, but also to shed light on why seemingly well thought out preparedness campaigns fail to take effect. Moreover, the study of emotions raises fundamental questions about how we, as researchers, frame the 'problem' of irrationality. Harries' study (2008) of ineffective flood preparedness campaigns and the continued presence of unprepared UK citizens in flood risk areas provides an effective illustration.

[1] Associated with, for example, post traumatic stress disorder (PTSD)

Harries' (2008) research in the flood prone areas of the UK explores not only the question of why people are failing to protect themselves despite knowing they are in a flood risk area, but 'why it can seem better not to protect yourself'. Using Malsow's (1943) hierarchy of motivation – a conceptual framework that seeks to demonstrate how individuals prioritise some categories of emotions over others – Harries (2008: 3) seeks to demonstrate that *'...the rejection of flood-risk mitigation measures - and*

*indeed, of the whole discourse of flood-risk mitigation... can be seen as entirely rational'*. In short, a better understanding of individuals' own motivational priorities can reveal that the refusal to prepare for floods is in fact rational. For the at-risk communities within the UK, the failure, or refusal, to undertake flood risk mitigation measures reflects a rational desire to prioritise their conception that the home is a safe place, that society will protect you and that nature is benign (Harries, 2008: 20). This is what Giddens (1991) refers to as *ontological security*, which individuals are placing above their physical security: *'Preferring to think of their homes as places that are innately safe, they reject the idea of defending them'* (Harries, 2008: 2). The UK government's relatively ineffective flood prevention campaigns could thus be improved by a greater consideration of the role of emotions. For example, reducing the uncertainty surrounding mitigation measures by stating exactly what people need to do rather than providing options could reduce the likelihood of individuals becoming anxious about which measures to take.

Calling into question the decision-making choice of individuals at risk of disasters is not confined to the issue of preparedness. Indeed, Raid, Norris and Ruback (1999) use people's experiences of Hurricane Hugo and Hurricane Andrew in the United States to explore why people do not evacuate when it would seem 'logical' to do so. Their findings are somewhat inconclusive, leading the authors to stress that behaviours in relation to disasters remain largely unexplained. However, they do make the interesting point that individuals' decisions  not to evacuate resulted in a large number of victims being 'directly traumatized by the fury of the storms' (Raid *et al.*, 1999: 929). Actions in one disaster may not only affect the individuals' emotions in relation to that particular event but also affect their behaviour, choices and emotions (particularly levels of fear) in subsequent disasters.

Fear is an emotion pertinent to the experience of disasters. Fear is incredibly powerful and has been shown to influence people's behaviour and attitudes to disaster preparedness. Siegrist and Gutscher (2008: 777) for example found that *'...people with flood experience stated more often that fear of flood damage was an important factor in implementing preventative measures'*. Similarly it is the fear of looting hat has been identified as deterring people from evacuating in the event of technological disasters (Perry, 1985, in Riad *et al.*, 1999).

Riad *et al.* (1999: 920) link this to the concept of 'territorial functioning', which they define as *'...an interlocking system of sentiments, cognitions, and behaviours that are highly place-specific, are socially and culturally maintained'*. Put another way, emotions play a determining role in provoking action to defend one's territory and protect property and possessions. Emotions therefore must not be viewed in isolation but in relation to a range of other influencing factors, such as property ownership. In this example, territorial functioning is linked to feelings associated with ownership and thus more likely to be experienced those who own their own home or have lived in places for longer periods of time (Riad *et al.*, 1999: 920). Interestingly, this is related to another set of socio-cultural patterns such as personalising the home, placing signs and barriers up and

marking ones territory. But what does this tell us about emotions in relation to disaster preparedness? Unfortunately, yet again there are no easy answers. Neither the length of residence nor level of property ownership could be consistently linked with better understanding the likelihood of individuals evacuating (Baker, 1979, in Riad *et al.*, 1999: 920).

## 2.2. Unrealistic optimism

'Unrealistic optimism' is a useful concept for understanding why people behave in ways that contrast with the culture of preparedness encouraged by DRM policy makers and practitioners. The concept has received most attention in the field of social psychology but has much to offer in furthering our understanding of what can make for effective DRM.

An example of unrealistic optimism in practice is in Sattler, Kaiser and Hittner's study of disaster preparedness for hurricanes within the USA (2000).[2]  Their research took place in Charleston, South Carolina, which experienced a class four hurricane in 1989, causing what at the time was the most damage, measured financially, as the result of a natural hazard in the history of the USA. Charleston has since been threatened by four hurricanes, all of which changed course at the last minute. The research looked at the preparedness of individuals for two of these 'near misses'; Hurricane Emily (September 1993) and Hurricane Fran (September 1996). The findings identified that the psychological distress resulting from Hurricane Hugo impacted on people's preparation for Hurricane Emily, but not for Hurricane Fran. Why? Amongst the reasons Sattler *et al.* (2000: 1414) propose to explain this is the length of time between the hurricanes: four years between Hugo and Emily, seven years between Hugo and Fran. The preparedness witnessed for Hurricane Emily could be attributed in part to the reasons discussed in the previous section; being able to recall negative emotions associated with a disaster experience. But why then did the level of preparedness diminish by the time Hurricane Fran appeared? Sattler *et al.* (2000) sought alternative explanations and attribute this to the 7 year break between Hurricane Hugo and Fran which resulted in distress symptoms *'...diminishing over time'*; being *'...less accessible cognitively'*; and *'...less readily activated by appropriate stressor cures'*. They suggest that 'memory biases' may have formed over time, affecting people's perceptions of previous events and thus their decisions on preparedness. But perhaps more significantly Sattler *et al.* (2000) suggest that the change may be reflective of unrealistic optimism.

Examples of unrealistic optimism are commonplace, with sayings in the UK such as 'it won't happen to me' or 'lightening never strikes twice'. Yet this is not just a matter of downplaying the possibility of being affected by a disaster through everyday language. Psychologists suggest that unrealistic optimism may have two contrasting effects: a) previous experience can act as a coping mechanism by helping to reduce anxiety because there will be some level of understanding of what may come, or b) unrealistic optimism may deter people from taking preparedness or precautionary measures by downplaying the possibility of a disaster or the possible effects of a disaster (Burger and Palmer, 1992, in Sattler *et al.*, 2000: 1415). These two effects

[2] Sattler et al. (2000) draw on two theoretical models. The first model is the 'conservation of resources stress model', which predicts psychological stress as a result of a reduction in resources. The second is the 'warning and response model' which argues that three factors (situational, personal characteristics and social contextual variables) influence perceptions of threat and the resultant protective actions.

will be explored in turn.

First, the assertion that anxiety may be reduced as a result of having experienced a disaster previously and thus an individual will 'know what to expect': as Sattler *et al.* (2000: 1415) found, people who experienced disasters more than once may become 'inoculated' to certain psychological distress symptoms by their previous experience. Similar findings were also evident in survivors of rural Kentucky floods who experienced fewer symptoms of anxiety when faced with a new flood (Norris and Murrell, 1988, in Sattler *et al.,* 2000: 1415).

Second, the assertion that the experience of a disaster may actually prevent or deter people from taking precautionary measures: unrealistic optimism in this regard is furthered by people's experiences of 'false alarms' or 'near misses'. This was the case for the aforementioned communities of Charleston who felt that, since the devastation of Hurricane Hugo in 1989, the fact that they had experienced four subsequent 'near misses' supported a false sense of security and even luck, thus deterring preparedness action (Sattler *et al.*, 2000).

Unrealistic optimism was also evident within the communities of Auckland, New Zealand, who undertook relatively little preparedness measures despite the likelihood of volcanic eruptions. Furthermore, individuals would perceive themselves to be less vulnerable in comparison to others within their community. As Paton, Smith, Daly and Johnston explain in their study (2008: 182), '*...in doing so, people transfer risk to others within their community rather than accepting this risk themselves. If all members are making similarly biased assumptions about the distribution of risk within a community, no change in either the level of perceived risk or their level of preparedness is likely to occur*'. Individuals not only transferred risk to other members of their community, but also to agencies responsible for DRM (Paton *et al.*, 2008). Ironically, but also somewhat worryingly, the more campaigns there were about safety, the less people felt they needed to act. This finding has been termed 'risk compensation' (Paton *et al.*, 2008:182).

Many of the findings discussed above in relation to the role of emotions and unrealistic optimism refer in some way to previous experience. This is the focus on the next section.

### 2.3. Previous experience

Previous experience is often assumed to be a trigger for behavioural change, particularly in relation to better preparedness. Empirical research however demonstrates that this is not necessarily the case and that the findings are mixed and often contradictory.

There is empirical evidence to suggest that previous experience does not necessarily lead to increased preparedness. Some of the possible reasons for this have been mentioned above, such as territorial functioning, ontological security, memory bias and unrealistic optimism. Another possible reason for this is that as humans we are not particularly good at what is described as 'evaluability' (see Siegrist and Gutscher, 2008: 772).

This is our ability to effectively evaluate the affect of a natural hazard. For example, because of the tendency of media coverage to focus on quantifying financial losses as a result of disasters, there is less awareness of the emotional consequences of a disaster. Those not directly affected by disasters are less likely to recall the negative emotional aspects of the experience of others and thus inaccurately evaluate the possible impacts if they were to be affected. Indeed, Siegrist and Gutscher (2008: 771) found that it is not only difficult for individuals to effectively imagine what being affected by a disaster might be like, but most individuals in fact strongly underestimated the likely negative affect.

In contrast, there is a substantial amount of empirical research in other contexts and hazards which demonstrates that previous experience is a significant factor in preparedness. As an example, research into rural farming communities' preparedness for wildfires and grassfires in Victoria, Australia, reveal that there is not only a high understanding of the hazard but also high preparedness (McGee and Russel, 2003). Previous experience was one of the most important factors attributed to motivating better preparedness, but experience alone was not enough; it was tied into the practice of dealing with fires as part of a farming community. Learnt preparedness measures such as farmers' own knowledge of burning off fields were passed on through generations. This is what Jakes *et al.* (2003, in McGee and Russell, 2003: 10) refers to as 'cultural capital' which emphasises *'...the importance of agricultural heritage, experience and longevity in the community in fostering preparedness'*. Moreover, the families that were most prepared were those who had lived in the area for an extended period of time, established links with the local fire brigade, and developed strong social cohesion though farmer networks.

Unlike many communities around the world which face hazards, the rural communities in Victoria often face the choice of whether to stay and defend their properties or whether to evacuate. The majority of families in McGee and Russell's research (2003: 10) frequently decided to stay and protect their property, were considerably confident and capable of doing so, and accepted responsibility for wildfire preparedness as part of their farming role. Before moving on to consider some of the implications of the findings related to emotions, unrealistic optimism and previous experience to DRM, the paper first considers some methodological limitations of the literature.

### 2.4. A note on methodology

Despite being a somewhat obvious statement, there must be appropriate recognition of the methodological criticisms of research studies. This is particularly important when drawing heavily on disciplines that use different research methods to those disaster risk managers are familiar with. One of the most fundamental limitations of a number of the aforementioned research studies is their use of decision-making models which *'...presume that individuals under severe stress can think rationally'* (Riad *et al.*, 1999: 932). It seems somewhat ironic that many of these models fail to take account of the so-called 'defective information processing' which happens under severe stress of a disaster. The failure

to accommodate for so-called 'non-rational' responses even meant that Raid *et al.* (1999: 932) were unable to categorise many of the respondent answers because they did not fit into the rational decision-making perspective.

Other methodological critiques that need to be considered relate to attempts to categorise individuals. As Chauvin, Hermand and Mullet (2007: 171-172) note, *'...characterizing individuals is much more complex than characterizing hazards, especially since individual variability is considerable'*. That said, the challenge is not simply one of finding a way to effectively categorise individuals. Even if this were possible, which some would argue it is not, we would be limited by the categorisations of our current worldviews. The categories that are currently used to try and categorise, order and re-organise individuals say just as much about the researcher and their cultural context as they do of those that are the focus of study. The more fundamental questions regarding the way in which we understand the world to be constructed and how we believe the world can be studied notwithstanding, this raises practical problems regarding the comparability of research. As Chauvin, Hermand and Mullet (2007: 172) correctly point out, *'..the personal dimensions considered varied widely from one study to the other, mainly as a function of the authors' preference and choices'*. As the author of this paper found, the ability to make comparisons between research studies is limited because of the difference between the socio-psychological aspects being studied.

Another challenge is the method chosen by some researchers seeking to apply psychological theories. Take for example the Sattler *et al.* (2000) study. Questionnaires were used with a group of respondents with a mix of demographic backgrounds, although as the authors acknowledge the group was not necessarily representative of those affected by hurricanes. Moreover, the majority did not own their own home. Given the influence that ownership of property makes on preparedness and evacuation, as suggested by Riad *et al.*'s (1999) work on territorial functioning, this somewhat limits the applicability of the findings to other groups.

Harries' study (2008) also raises important questions about not only the method of study being employed to address the role of emotions within disaster preparedness, but the very framing of risk by many researchers. Firstly, the use of methods that take people's responses at face value have limitations for exploring emotions: *'As emotions are primary to rational thought and do not necessarily enter consciousness, this implies the need or a methodological shift towards research methods that look beneath the superficial meanings of what people say and explore the representations and discourses that shape their speech and actions'* (Harries, 2008: 23). Secondly, there remains the predominance of the notion that lay people have a distorted perception of risk because of their failure to take heed of expert advice on preparedness. As Harries (2008: 6) points out, the validity of this assumption is called into question with a greater consideration of the role of emotions and the social construction of people's understandings of disasters.

# 3. What are the implications for disaster risk management?

Many of the concepts discussed in this paper, such as unrealistic optimism, territorial functioning, memory bias and evaluability, offer the potential to better understand why some of the seemingly well thought out and best intended DRM interventions fail to have the desired effect or result in the opposite behaviour to that intended. This raises important questions about the need to re-think the way we undertake DRM. As an initial contribution, outlined below are some of the implications that need to be considered within DRM programmes and policies.

a   Questions were raised about the assumptions within research that fails to explore the relevance of time lags between people's experiences of a disaster and subsequent preparedness. There is a tendency for people who have previously experienced a disaster to be categorised into a single group and treated as though they would all behave in a similar manner, by virtue of their experience. The findings of Sattler et al.'s (2000) work on hurricanes in Charleston indicated that this is not necessarily the case and in fact the longer the period of time between experiences the more lax individuals' preparedness activities become. A possible way to counter this is to ensure preparedness campaigns take place while memories of disasters are close enough to be recalled accurately (yet within a sensitive time frame) to avoid memory bias. Alternatively, remembrance campaigns could be initiated to ensure preparedness is maintained long after a disaster event and to overcome the complacency, as found in Charleston, by challenging memory bias.

b.   Another implication for disaster risk practitioners and policy makers is to avoid the complacency that may develop when communities are seemingly well prepared for disasters or have a proven track record of managing disaster impacts effectively. For example, McGee and Russel (2003) found that despite the Victoria communities having strong capacity and capability to deal with wildfires and grass fires, the authorities responsible for DRM need to be cognisant of the changing demographics within the communities. Researchers found that newcomers as well as an ageing population meant that emergency managers should not assume communities do in fact know how to protect themselves and are taking the necessary precautionary measures (McGee and Russel, 2003: 11). DRM interventions should therefore seek to take special measures to account for the fact that newcomers will not have the same level of territorial functioning or historical experience with wildfires and grassfires, nor the networks or established relationships with the fire service, that were found to be so significant to existing communities' capacity to deal with disasters. The need to avoid complacency is particularly important in the face of climate change where new and unexpected scenarios may exceed communities' capacity to cope with disaster risk.

c.   Both examples above point to the need for communities to be more (or continually) informed about climate and disaster risk, but current practices for communicating risk reduction have vast potential to be

improved, as highlighted by the research on flooding in Switzerland. The findings showed that people who experience flooding are more likely to take preventative action against future risks because of their ability to remember negative emotions associated with the experience. The implication for DRM strategies is that *'The challenge of risk communication lies not so much in providing rational information but in adequately addressing the experiential system'* (Siegrist and Gutscher, 2008: 777). Siegrist and Gutscher (2008: 771) suggest that risk reduction must move beyond a focus on the technical aspects of flooding to include triggers for motivating mitigation behaviour, which in this case are the negative emotional consequences of natural disasters. This poses a challenging question for disaster risk managers: *'Can there be a substitute for direct, personal experience?'* (Siegrist and Gutscher, 2008: 777). Or, indeed, is it appropriate to frame DRM interventions in negative terms? At what point would this become a scare tactic and what are the ethical implications of that? Recent government broadcasts by the UK Government aimed at promoting action on climate change have been criticised for adopting such as scare tactic, with images showing flooding causing dramatic loss of livelihoods and property (Whitmarsh, 2011).

d.  Research into the lack of preparedness by communities at risk of volcanic eruption in Auckland challenged the current trend for public education programmes that require the audience to passively receive information. Paton et al. (2008) thus highlighted the importance of improving campaigns aimed at promoting disaster risk preparedness by: i) paying more attention to the quality of relationships between individuals and civil agencies, with emphasis on linking personal, social and civic factors affecting behaviour; and ii) encouraging proactive participation and dialogue as a means to convey the need to take preventative action. There is a tendency for DRM, and climate change awareness raising campaigns more generally, to distribute information that has been largely determined by agencies external to a community (even if the intermediary is from the community or region) as exemplified by the toolkits, manuals and training programmes offered. This reduces the space available for dialogue, exchange and most crucially learning on the part of the risk reduction agencies about the factors that influence individuals' risk behaviour.

The implications raised in this section have relevance beyond the examples they emerged from and require consideration and application in other contexts in order to have broader relevance. As hinted in point d. above, there are also implications that present more fundamental challenges to the way DRM currently operates. This is the focus of the conclusion: there are limitations to making small shifts in the way we currently work when the framing of risk being employed within DRM is external to the recipient communities.

# 4. Conclusion

This paper has sought to bring to the fore a number of concepts that are not conventionally incorporated into mainstream DRM policies and programmes but which offer the potential to advance DRM thinking and practice to better support the lives and livelihoods of those affected by climate and disaster risk. In working through these concepts, more fundamental challenges have emerged that raise questions about the assumptions underlying current DRM. In this concluding section two tensions that emerged through the paper are discussed. First, DRM agencies (and subsequently their interventions) hold different conceptions of risk and different risk priorities in comparison to the recipient communities. Second, the problematic assumption that, with sufficient knowledge and capacity, people will behave in ways DRM programmes intend.

The differences between conceptions of risk and risk priorities between 'insiders' and 'outsiders' (Cannon, 2008) are not always taken into account for the following reasons:

- Lack of space to appreciate these differences. For example, the aid system largely requires interventions to be predetermined in advance of substantive work within communities.
- Programme priorities may be determined by headquarters far from the intervention site.
- Poor outcomes to an intervention caused by an inherent tension between external agencies and communities' priorities, which results in poor uptake or buy-in from the community. Often this is interpreted as challenges of programme implementation.
- Differing priorities are overlooked by agencies with specialised terms, tools and experience. Agencies regard themselves as knowing best what would benefit a community and try and change behaviour or risk priorities regardless of local knowledge.

The story is not as negative as this list implies. Indeed, the tensions that different risk priorities present to disaster risk programmes are commonly recognised by disaster risk managers. The challenge lies in changing the institutional culture to openly recognise such tensions and support dialogue to identify ways for them to be overcome. For example, there are instances where DRM programmes have intended to implement activities to address one type of risk but have changed the focus of their programmes to something quite different to better reflect the recipient communities' priorities. However such examples are few and far between.

The assumption that 'better DRM' is the answer and that with sufficient knowledge and capacity people will behave in ways that DRM programmes intend, fails to adequately critique the underlying assumptions of current DRM practice. This is not a new idea. Many authors have noted that people knowingly live in areas 'at risk' and exercise substantial choice in doing so (Cannon, 2008: 351). This poses a number of problems for disaster risk managers. Most critically, it calls into question the implicit and underlying logic of DRM interventions which assume that people would, given

sufficient knowledge and awareness, not knowingly live in areas deemed as 'risky'. The implications of this for DRM practitioners are inherently problematic. As Cannon (2008: 355) notes, *'...improving their [vulnerable communities] security means persuading people to act against what they think are their own interests, or denying their culture or psychological preferences'*. The use of the term 'bounded rationality' is useful here, when applied to the DRM sector. Schipper and Dekens (2009: 1) explain that *'... people have bounded rationality; that is, people's rationality is limited to their own information, beliefs and (economic) tradeoffs'*. This term is useful for thinking not only about the role of culture in determining communities' choices, behaviour and preferences, as Shipper and Dekens (2009) use the term, but in turning a critical lens to the DRM sector: we employ our own bounded rationality when seeking to enact DRM interventions, which often do not align with the rationality of the people we are trying to help. Some of the concepts explored in this paper provide ways to better understand why seemingly well thought out DRM interventions have not had the desired effect. For continued development of the DRM sector we need to become more self-reflexive and take seriously the social and psychological dimensions of our own and others' behaviour.

Further research is required to investigate the significance of cultural differences in the way communities in hazard-prone regions interpret disaster and climate risk. A nuanced understanding of the implications and challenges as well as opportunities this presents would make a significant contribution to current debates. Specifically, future research directions could include an exploration of how some of the issues raised within this paper affect disaster preparedness. For example:

- What factors encourage some individuals to transfer risk *(risk compensation)*, while others accept responsibility?

- What factors influence *memory bias* and thus individuals' motivations to prepare for disasters?

- How do different cultural interpretations of disasters affect so-called *unrealistic optimism*?

- Why may some individuals be more likely to become 'inoculated' by their previous experiences?

- What provokes some individuals to enact *territorial functioning* and not others?

- How can we improve our *evaluability* to encourage more action on climate and disaster risk reduction?

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