



# **Disaster “problem” framing: A constructivist framework for disaster risk policy in Zimbabwe**

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## PREFACE

The thesis is submitted in article format consisting of 4 research articles. The student, Paul Chipangura, was the main author on all articles with promoters, Prof. D van Niekerk and Prof. G van der Walddt serving as co-authors. Two of the articles have already been published in academic journals. Article 1 was published in *Disaster Prevention and Management: An International Journal* and Article 2 in *International Journal of Disaster Risk Reduction*. Article 3 was submitted to the *Jamba Journal of Disaster Risk* and Article 4 to the *International Journal of Risk Assessment and Management*. Attached as appendix A is a letter of conformation by co-authors that the articles contained herein may be submitted as part of the PhD thesis.

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## ABSTRACT

As disasters continue to be on the rise with devastating consequences globally, the need for effective disaster risk reduction policy has never been greater for the safety and well being of the citizenry. The process by which disaster risk reduction policy choices are made is thus fundamental in minimizing the devastating effects of disasters. This calls for understanding the dynamics of disaster risk “problem” framing in disaster risk policy making in order to effectively mitigate, prepare for, respond to and recover from disasters. Of concern in disaster risk management has been whether disaster risk should be viewed as an objectively identifiable phenomenon (objectivism) or a subjective, socially constructed process (constructivism). However, little research has been done to understand what these frames mean for disaster risk policy designs, and with what, consequences for their implementation. This research effort thus sought to understand how disaster risk “problems” are framed and explore the implications of framing on policy formulation and implementation. It focused on the relation between disaster risk causality, disaster risk policy problem framing and policy responses in Zimbabwe. Understanding, disaster risk framing is critical because, framing influences how disaster risk policy problems are defined and constructed as well as how the governance arrangements developed to address the problems are designed.

The empirical focus of this research was on the ongoing post-disaster experiences and perceptions of the at-risk people, policy makers and policy implementers in Zimbabwe. The research was guided by the interpretivism research approach because it is concerned with the understanding of collective social constructions of meaning and knowledge that are determined by political and social processes. The research used qualitative semi-structured interviews to seek out the views of practitioners and specialists in a deeper manner as well as to allow flexibility within the interview. In achieving the objectives of the study, four research articles were developed and they formed part of the thesis.

Article 1 sought to understand how disaster risk is portrayed in objectivism and social constructivism perspectives. In objectivism, disaster risk is viewed as the real, quantifiable product of nature’s impact on society; independent from the social constructions of a society. Social constructivism reflect an emerging understanding that disaster risk while potentiated by a physical condition, are essentially a “social construction” the result of

social choices, social constraints, and societal action and inaction. The article revealed that viewing and managing disasters through the lens of objectivism might not yield the desired results of minimising risk as it conceals vulnerabilities to disaster risk. The objectivist perspective is therefore in itself considered inadequate for the study of disaster risk and that social constructivism assumptions are required in order to analyse disaster risk. Article 2 sought to critically explore societal perceptions of disaster risk problems in Zimbabwe in order to give them meaning and render them manageable. The results of the study revealed that the Zimbabwe disaster risk management system is dominated by the hazard frame and rival frames such as vulnerability and theistic frames are silenced. The silenced frames (vulnerability and theistic) were found to be crucial in understanding the social construction of disaster risk. The article argues that the locus of disaster risk problem is not to be found primarily in governmental agencies; rather, it is to be found in the communities where risk is generated and experienced.

Article 3 investigated what the objectivist frame of disaster risk mean for disaster risk policy designs in Zimbabwe and with what consequences for their implementation by looking into how framing affects tractability in policy implementation using the Tokwe-Mukosi flood disaster. The results of the study suggest that tractability of the objectivist frame is mainly affected by its limited understanding of the causes of, and solutions to disasters. The frame ignores rival frames crucial in disaster causality such as the constructivist frame and in “ignorance” it harbours “latent” failures which only become apparent on the occurrence of a particular major disaster. Moreover, the objectivist frame requires significant administrative and technical expertise and funding to be tackled effectively which are not readily available especially in developing countries. The framework presented in article 4 is a step towards translating the conceptualization of disaster risk as a social construct into a practical set of arrangements that practitioners can use to navigate the complex and fluid landscape of disaster risk problems and solutions, especially in Zimbabwe. The framework constitutes a five-stage process of inclusivity, diagnostic, prognostic, and motivational framing and evaluation. The framework is designed to facilitate the building of trust, ownership, and consensus that ultimately increase the legitimacy to policy decisions and stakeholder support in disaster risk reduction.

The results of the research contribute to literature on disaster risk reduction by showing how framing links disaster risk policy problem construction and policy responses. The research contributes to literature on policy implementation by showing that disaster risk cannot be entirely solved by the technocratic paradigm alone, social constructivism is also required in disaster risk reduction. It also contributes to disaster risk framing literature by specifying how disaster risk knowledge is framed by its social producers and users which reflect the interest and culture of the disaster policy-relevant actors. The framework presented in this research contributes to literature on community based disaster risk reduction as it seeks to deepen the contribution of the at-risk publics in disaster risk reduction policy formulation through creating a platform for an inclusive deliberative dialogue. Moreover, it establishes concrete ways to develop a methodology that can be used to promote participation in order to capture the diversity of perceptions, resources and problem definitions.

**Keywords:** Disaster risk, Constructivism, Framing, Policy, Objectivism, Tractability

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## **CHAPTER 1: OVERVIEW OF THE STUDY**

### **1.1 INTRODUCTION**

The term “disaster risk” presents a bewildering paradox. At one level it is a success given the concept’s diffusion among government, academics and policy actors. Yet, it is simultaneously a policy failure given that disasters continue to strike with increasing regularity and ferocity, killing millions of people and destroying billions of dollars of habitat and property each year (CRED, 2018). While there have been significant efforts in many countries to formulate policies geared towards minimizing the devastating effects of disasters, understanding policy failure has remained something of an enigma. Researchers seem bedevilled by the fact that there is no clear consensus between the objectivist and constructivist perspectives of disaster risk as to what the term “disaster risk” means or any modicum of agreement on what causes disaster risk and how it should be managed. The term “disaster risk” has thus been framed differently by different scholars and practitioners. Of concern as Oliver-Smith (1999) posits, is the issue of whether “disaster risk” should be viewed as an objectively identifiable phenomenon (objectivism) or a subjective, socially constructed process (social constructivism). Authors such as Perry (2007), Quarantelli (2005) and Oliver-Smith (1999), have devoted whole volumes to the question: What is a disaster? Worryingly, as Demeritt (2001) argues, there is little understanding about what the objectivist and the social constructivist frames of disaster risk actually mean for disaster risk policy formulation and implementation especially in developing countries where disaster risk management is often imported.

Understanding disaster risk policy failure therefore calls for understanding the dynamics of problem framing in order to clarify what the problem is and how policy intends to address it. As Lavell and Maskrey (2013) argue, if a disaster risk policy problem is not framed appropriately, then from the very outset disaster risk governance arrangements and instrumental systems that flow from that frame will necessarily also be flawed. As a result disasters are likely to continue to be devastating in many communities. This thesis therefore draws on disaster risk, framing and policy analysis literature to delineate the linkage between conceptualisation of disaster risk and the formulation of disaster risk management related policy problems. The achieved purpose of this thesis is thus to

understand how disaster risk “problems” are framed and explore the implications of framing on policy formulation and implementation. This research is motivated by the desire to illustrate the practical consequences that interpretations of disaster risk have for disaster risk management policy making and implementation in Zimbabwe. The argument is advanced that framing of risk provides a firm theoretical basis for the design of effective disaster risk management policy.

In unpacking the connectivity of disaster risk problem framing to policy responses, this chapter first introduces the main issues necessitating the research. This is followed by the research questions and objectives identified to guide the research process. The methodology section discusses aspects relating to research design including, philosophical underpinnings of the study, empirical data collection and data analysis. Moreover, the methodology section explains the process of thesis by article so that the reader may understand what is to come. The chapter then provides an outline of the chapters that comprise the thesis.

## **1.2 ORIENTATION AND PROBLEM STATEMENT**

Since the declaration of the 1990s as the International Decade for Natural Disaster Reduction; disaster risk has become a policy issue of global and local concern (Manyena *et al.*, 2013; Comfort *et al.*, 1999). The need to develop public policies that minimise disaster risk and build resilience has been emphasized in the Southern Africa Development Community Regional Disaster Risk Reduction Strategic Plan, the Hyogo Framework for Action 2005-2015 and the Sendai Framework for Disaster Risk Reduction 2015-2030. Furthermore, in 2012 disaster risk, as a policy issue was on the agenda at Rio+20, G-20 and Summit of the Americas (Mitchell & Wilkinson, 2012). In the resultant policy frameworks, there is agreement that countries that develop policy, legislative and institutional frameworks for disaster risk reduction have greater capacity to manage disaster risks (Mitchell & Wilkinson, 2012; UNISDR, 2009). Consequently, there have been efforts to strengthen institutional and legislative structures in many countries to minimise the devastating effects of disasters and disaster risk (UNISDR, 2009). For example, in Zimbabwe, in the early 1980s, disaster risk management was administered through the Civil Defence Act of 1982 (Mavhura, 2016; Bongo *et al.*, 2013a). In 1989, the

Civil Defence Act was repealed by the Civil Protection Act of 1989, which was amended in 1992 and 2001.

However, where disaster risk has appeared on policy agenda in many countries, implementation has rarely occurred (Lavell & Maskrey, 2013; Dupuis & Knoepfel, 2013) and where it has been implemented the results have been disappointing (Lavell & Maskrey, 2013). Consequently, disasters have continued to be devastating in many countries (CRED, 2018; IFRC, 2013). Globally, between 2006 and 2017, a yearly average of 354 disasters was reported (CRED, 2018). These caused an estimated yearly average of US\$153 billion in damages with a yearly average of 68 302 lives lost and about an average of 210 million people affected per year (CRED, 2018). In Zimbabwe, while the Civil Protection Act of 1989 and Civil Defence Act of 1982 have been put in place, the impact of disasters on the economy and population has been very high. In 2014, Zimbabwe featured in the “extreme risk” category on the Natural Disasters Economic Loss Index (Maplecroft, 2014). In 2016, the country also featured among the top 10 countries in the world in terms of disaster mortality and top 10 countries in terms of people affected by disasters (Guha-Sapir *et al.*, 2016). Between 1980 and 2010, thirty five disaster events were reported in Zimbabwe, with 6,448 deaths (PreventionWeb, 2013). On average, 531, 886 people were affected by these disasters while economic damages were estimated to be US\$2, 827,700, 000 (PreventionWeb, 2013).

Given this context, it is evident that disaster risk management policies being implemented in many countries including Zimbabwe continue to be both ineffective and inefficient. As Lavell and Maskrey (2013) argue disaster risk management policies and policy changes in many countries have been unfit for their intended purpose of minimizing disaster risk. Such policies have been little more than “empty shells” that suffer “implementation deficit” (Dupuis & Knoepfel, 2013; Hill & Hupe, 2009). Understanding disaster risk policy failure is therefore an important aspect of disaster risk management and policy studies because it signals possible inadequacies of policy design, the inability of a policy to meet its intended goals and potential problems associated with implementation (O’Donovan, 2017). However, while numerous studies in disaster risk management have examined shifts from the hazard paradigm through vulnerability to resilience, there has been limited research on disaster risk management legislations (Manyena *et al.*, 2013).

This situation has led to gaps between the practice of policy making and policy research, a gap that often manifest in a time lag between understanding the nature of the policy problem and the identification and implementation of policy solutions (Burton & Dredge, 2007: 142). As a result, disaster risk policy failures are likely to lead to calls for more policies if the causes of failure are not addressed.

Though there is little evidence in disaster risk studies, scholars of public policy have suggested that framing underlies many policy failures (Handmer & Dovers, 2013; Grafton & Permaloff, 2005; Benford & Snow, 2000; Weiss, 1989). This is because framing influences how a problem is defined and constructed as well as how the governance arrangements are developed to address the problem (Grafton & Permaloff, 2005; Handmer & Dovers, 2013). Through framing, particular interests are therefore advocated or undermined. Thus how a particular disaster risk policy problem is framed creates assumptions and rationales that authorize some policy solutions and not others (Benford & Snow, 2000; Schneider & Ingram, 1993; Weiss, 1989). Arguably, framing has the potential to determine the policy process path and how successful the chosen path is going to be implemented (Merry, 2013; Tait, 2008). However, while public policy research provides insights of the causes of policy failure/success (O'Donovan, 2017; McConnell, 2010), little attention has been given to how framing contributes to failure/success in disaster risk management especially in developing countries. This research therefore takes “framing” as its subject in analysing disaster risk policy failure/success.

The concept of framing has been studied in different fields such as psychology (Tversky & Kahneman, 1981), sociology (Benford & Snow, 2000) and policy science (Schön & Rein, 1994). Among Zimbabwean studies, there have been no attempts to apply frame analysis to understand and analyse disaster risk reduction. Framing involves the selective use of knowledge and information about a problem and the causal relationships surrounding it, to give it meaning and render it manageable (Schön & Rein, 1994). As Hallahan (1999) argues, to frame is to select some aspects of perceived reality and make them more salient in the communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described. As a result, frames shape the goals and plans people make, the way they act, and what counts as a good or bad outcome of an action (Lakoff, 2004: xv). Framing is thus

central to understanding the policy process, as it provides a flux of ideas that eventually diffuse in the design of formal policies (Dupuis & Knoepfel, 2013; Campbell, 2002). According to Peters (2005), problem framing helps in understanding the orientation of policy design and the types of policy outputs that are likely to emerge.

In disaster risk management, framing is therefore responsible for the development of disaster risk problems, for the way in which they are perceived, for the way in which they are considered, for the kind of remedial plan that is laid out and for the transformation of the remedial (Grafton & Permaloff, 2005; Handmer & Dovers, 2013). The ability to frame disaster risk policy problems is thus critical as it can define a state of failure, where failure is embodied in disaster risk accumulation and the damage caused by a disaster, and a state of success where disaster risk is reduced and the effects of a disaster are managed and controlled (Hoshizaki, 2012). How disaster risk is framed is therefore interesting in the context of disaster risk reduction, because competing framings of disaster risk have been conveyed by international institutions, scholars and practitioners (Shaw *et al.*, 2013; O'Brien *et al.*, 2007; Quarantelli, 2005; Oliver-Smith, 1999). Such framing differences can be attributed to the utility of the concept across different fields of disaster risk study such as natural hazards, risk, emergency management and development. However, in disaster risk literature, two contra extremes (objectivism and social constructivism) that characterize the ontological and epistemological viewpoints in disaster risk research and practice can be identified. These two frames have often been accompanied by confusion around which the term “disaster risk” should be understood and the subsequent orientation on how “disaster risk” should be managed (Shaw *et al.*, 2013; Perry, 2007; Quarantelli, 2005; Oliver-Smith, 1999).

Thus, the objectivists have understood disaster risk as an objectively identifiable phenomenon and framed disaster risk as an “act of nature” (Lovekamp & Arlikatti, 2013; Althaus, 2005; Quarantelli, 2005). In this frame, nature is seen as the root cause of disasters and disaster risk (Fordham *et al.*, 2013; Lovekamp & Arlikatti, 2013; Quarantelli, 2005). According to Shefali (2009), disaster risk is viewed as a probability of loss in relation to the impact of a specific hazard. Thus the hazard is to blame for disasters and disaster risk. However, viewing disasters as constituted of moments where nature escapes human control (Hilhorst, 2003) has significant implications to disaster risk management,

which include: (1) the centre of attention in disaster risk management is placed on natural factors. Discourse of disaster causality therefore tends to overlook the socio-economic processes that place the vulnerable populations at risk and as a result such processes are not considered as policy issues. (2) Nature and society are viewed as unrelated and nature is considered a commodity that can be controlled through expert knowledge and modern administration (Hilhorst, 2003). (3) Public participation of vulnerable people is often neglected (Warner *et al.*, 2002) and this undermines their own capabilities and coping strategies in dealing with disaster risk (Shaw *et al.*, 2013; Pelling, 2003).

In social constructivism, disaster risk is viewed as socially produced and is rooted in the social structure and reflects the processes of social change (Lovekamp & Sudha, 2013). This perspective has advanced framing of disaster risk as a result of vulnerability of humanity to hazards. According to Fordham *et al.* (2013), the vulnerability paradigm of disaster risk is people centred and it focuses on the social, political, and cultural factors of people that make them vulnerable to loss from a hazard. In vulnerability, human beings, not physical forces, are seen as the root cause of disaster risk and disasters (Alexander, 2000). Social constructivism thus frames problems in ways that facilitate strategies and tactics that are open to a variety of solutions and scenarios that would give more weight to social priorities and local potentials in avoiding risk construction (Lavell & Maskrey, 2013; Fidler, 2007). However, while the academic literature since the early 1970s had long established the importance of the constructivism perspective in disaster risk management, explicit policy acknowledgement of the constructivism perspective has been lacking (Shefali, 2009). Less attention has been given on how societies arrive at collective disaster risk “problem” frames as a basis for disaster risk reduction policy (Handmer & Dovers, 2013).

In light of the above, it is clear that objectivism and social construction of disaster risk, prioritize the production of different types of knowledge, and emphasize different types of responses to disaster risk. The way in which a problem is framed therefore, inevitably emphasizes some aspects of the problem and de-emphasizes or ignores others (Weiss, 1989). As Coburn (2006); Benford and Snow (2000) and Schneider and Ingram (1993) argue, in so doing, framing assigns responsibility and provides direction for action. Thus in Zimbabwe, the emphasis on managing “natural” disasters as opposed to managing the

underlying vulnerabilities (Van Niekerk, 2014), has been locked into policies, governance arrangements and instrumental systems (Lavell & Maskrey, 2013). Both the Civil Defence Act of 1982 and the Civil Protection Act of 1989 have put too much emphasis on managing natural hazards (Mavhura, 2016; Bongo *et al.*, 2013a). By putting too much emphasis on natural processes, the social framework within which these processes manifest themselves is neglected (Manyena *et al.*, 2013; Oliver-Smith, 2004). The exposure of vulnerable people to disaster risk is therefore concealed and this inhibits the creation of socially sensitive disaster risk policies. One can argue that Zimbabwe is lagging behind the world in formulating policies that address disaster risk.

While the topics of policy, framing and disaster risk each boasts an established literature base, research at the intersection of these topics remains scant. This thesis therefore sought to understand how disaster risk “problems” are framed and explore the implications of framing on policy formulation and implementation. Understanding, disaster risk framing is critical because, framing influences the policy process, as it spells out the “problem” and the “policy solutions”. Moreover, exploring the implications of disaster risk problem framing on policy formulation and implementation might provide new insights in the area of disaster risk reduction. Attention is placed on demonstrating that, disasters are socially constructed and the policies and practices intended to minimise them should embrace the social constructivism perspective. In adopting the social constructivist perspective, the study aims to develop a comprehensive framework for disaster policy based on the social constructivism perspective of disaster risk.

### **1.3 KEY RESEARCH QUESTIONS**

With the aforesaid discussion in mind, the general research question can be presented as follows: Can a social constructivist framework be developed as a disaster risk policy for Zimbabwe which will assist in disaster risk problem framing?

The following sub questions provide the basis for exploring the general research questions.

- What is social constructivism and objectivism within the context of disaster risk reduction?
- How is disaster risk problem framed in Zimbabwe?

- How does disaster risk “problem” framing shape the emergence and nature of responses at policy level?
- What should a social constructivist disaster risk problem framing framework entail?
- What is the contribution of frame analysis to understanding disaster risk policy in Zimbabwe?

## **1.4 RESEARCH OBJECTIVES**

The objectives of the research are to:

- Define and explore social constructivism and objectivism within the context of disaster risk reduction;
- Investigate how disaster risk problem is framed in Zimbabwe;
- Explore and examine how disaster risk ‘problem’ framing shape the emergence and nature of responses at policy level; and
- Adapt and contextualise an appropriate social constructivist framework for effective disaster risk framing in Zimbabwe.

## **1.5 CENTRAL THEORETICAL STATEMENTS**

To gain a deeper understanding of disaster risk “problem” framing, this study is guided mainly by the framing theory, and two common opposing extremes that characterize the ontological and epistemological viewpoints in disaster risk research and practice “objectivism perspective” and “social constructivism perspective”. These are outlined below.

### **1.5.1 Disaster risk**

This study draws from a body of knowledge that relates to disaster risk. According to UNISDR (2009) the term disaster risk refers to the potential (not actual and realised) disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or society over some specified future time period. This view is shared by Lavell *et al.* (2012) who defined disaster risk as the likelihood over a specified time period of severe alterations in the normal functioning of a community or a society due

to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery. Disaster risk can therefore be viewed as the potential loss to the exposed subject or system, resulting from the convolution of hazard and vulnerability (Cardona, 2003). Thus, disaster risk derives from a combination of physical hazards and the vulnerabilities of exposed elements and will signify the potential for severe interruption of the normal functioning of the affected society once it materializes as disaster (Lavell *et al.*, 2012). Stated differently, Cardona (2003) argued that one cannot be vulnerable if one is not threatened, and one cannot be threatened if one is not exposed and vulnerable. Disaster risk is thus a product of the possible damage that may be caused by a hazard due to the vulnerability within a community (Van Niekerk, 2012).

### **1.5.2 Framing**

This study also draws from a body of knowledge that relates to framing. “Framing” has been described as a process by which actors construct and represent meaning to understand a particular event, process or occurrence (Gray, 2003; Goffman, 1974). Pan and Kosicki (2001:36), described framing as a discursive process of strategic actors utilising symbolic resources to participate in collective sense-making about public policy issues. According to De Boer *et al.* (2010: 502), frames can be characterized as “organizing principles that enable a particular interpretation of a phenomenon”. Framing thus organizes experience and guides action by rendering particular events as meaningful. Here, framing involves processes of inclusion and exclusion. As Hallahan (1999) and Entman (1993) argue, to frame is to select some aspects of perceived reality and make them more salient in the communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described. Framing thus allows certain questions to be asked while others are ignored (O’Brien *et al.*, 2007). Allana *et al.* (2010) argue that the key idea in framing is selectivity, where representation of a certain claim is dependent, in turn, on a process of omission, that is, the denial or silencing of rival claims. As such, frames enable members of a group to make sense of events they are engaged in, and contextualise them within a particular set of

values, ideas or political agendas, in order to arrive at a shared meaning and sense of purpose (Weick, 1995).

### **1.5.3 Objectivism**

This research draws from the objectivism perspective which is the cornerstone of scientism in understanding how disaster risk has been framed in Zimbabwe. Objectivism advocates the application of natural science to society (Sulphey, 2016; David & Sutton, 2011; Mills *et al.*, 2010). In objectivism reality exists independently of the human mind (Mills *et al.*, 2010). It consists of entities that have fixed properties and relations holding them at any instant (Lakoff, 1987: 160). Lakoff, (1987) further argued that, reality exists through the structures of these entities and is independent of any human understanding. Thus objectivism is based on the belief that there is an objective reality and that knowledge exists as something that can be observed and measured (Mills *et al.*, 2010). Genuine knowledge is therefore found within the bounds of science based on formal logic. According to Grbich (2007), knowledge can be deduced from careful processes of hypothesising, variable identification and measurement within experimental designs. From an objectivist perspective, disaster risk has been viewed as the real, quantifiable product of nature's impact on society; independent from the social constructions of a society. According to Shefali (2009), disaster risk has been generally defined as a probability of loss in relation to the impact of a specific hazard. This view of disaster risk places disaster risk problem on the hazard hence it is generally referred to as the hazard paradigm. As such disaster risk has also been viewed as an act of nature. However, this view of disaster risk has been criticized in that it has failed in its promise of knowing, let alone controlling, disaster events because the social framework within which disaster risk processes manifest themselves is neglected (Tironi & Manríquez, 2018; CADRI, 2017; Lavell & Maskrey, 2013; Oliver-Smith, 2013; Shaw *et al.*, 2013).

### **1.5.4 Public Policy**

This study also relies on public policy literature. Public policy may be viewed as a purposive course of action followed by government in dealing with what is perceived to be a problem or matter of concern. According to Handmer and Dovers (2013) policies are

positions taken and communicated by governments in more or less detail – “avowals of intent” that recognize a problem and state what will be done about it. Dimock *et al.* (1983:40) defines public policy as deciding at any time or place what objectives and substantive measures should be chosen in order to deal with a particular problem. This means that policies do not just take place in a haphazard way. Instead policy involves (1) the production of planned decisions or actions that involve public actors and (2) the intention to deal with what is seen as the problem (Knoepfel *et al.*, 2011, Handmer & Dovers, 2007; Howlett & Ramesh, 1995). In public policy, this study utilised literature on policy implementation. According to Brynard (2007) policy implementation is concerned with the following questions: Were the intentions of the policy translated into tangible outputs? Did the outcomes of the policy match its goals? What is being implemented? How is policy-making differentiated from policy implementation? Thus, policy implementation identifies the problem/s to be solved, stipulates the objective/s to be pursued.

#### **1.5.5 Social Constructivism**

This study also draws from a body of knowledge that relates to social constructivism epistemology and its application to disaster risk management. In social constructivism, the ontological thought is relativist, seeking to understand the identities of, the meanings attributed by and the experiences of different populations, against a background of competing perspectives on life and the world, within the setting being investigated (Guba, 1990). Social constructivism positions are founded on the theoretical belief that reality is socially constructed and fluid. As Majid (2017) and Burr (1995) argue, social constructivism repudiates the possibility of a theory neutral observational language and there is nothing like “ultimate true knowledge” out there but whatever is perceived as “truth” is as a result of inter-subjective socio-cultural consensus of views, which is perceived as “reality” in terms of knowledge. Social constructivism focuses on the exploration of the way people make sense of their experiences in the world in which they live and how the context of events and situations and the placement of these within wider social environments have impacted on constructed understandings (Majid, 2017; Crotty, 1998). It is through a dialectical process that a more informed and sophisticated understanding of the social world can be created (Creswell, 2007).

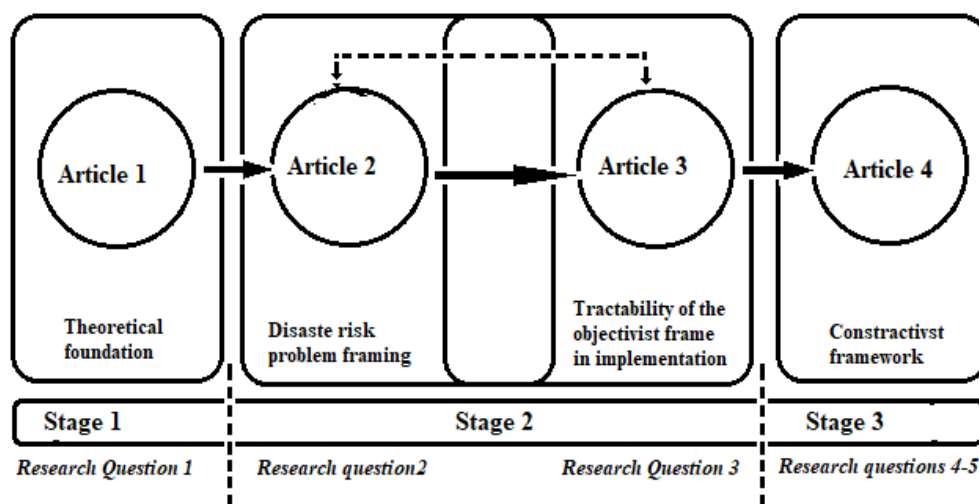
From a constructivist perspective of disaster risk authors such as; Ballano (2017); Sulphrey (2016); Lavell and Maskrey (2013), Shefali (2009), Quarantelli (2005) have argued that “disaster risk” is not something that lends itself readily to objective quantification or a single definition, but rather is socially constructed through the interaction of economic, cultural and political processes operating at several different scales. The social constructivism perspective acknowledges that each society develops its own localised ways of interpreting disaster risk which is understood within local priorities and knowledge systems (Bongo *et al.*, 2013b). In any society there is no one fixed definition of an issue, it is subject to the interpretative manoeuvres of the protagonists (Grafton & Permaloff, 2005). In this light, disasters generate framing contests that result in fierce competition over which interpretations hold sway over the collective imagination and the political establishment (Bongo *et al.*, 2013b). The process of collective definition is therefore responsible for the emergence of social problems, for the way in which they are seen, for the way in which they are approached and considered, for the kind of remedial plan that is laid out and for the transformation of the remedial (Grafton & Permaloff, 2005). Discourse, is thus key in unlocking the constructivism of disaster risk, and the policy challenge is to understand disaster risk problem framing. However, there is a dearth of studies that examine disaster risk as a social construction (Espia & Salvador, 2018, Monter & Otto, 2018; Chipangura *et al.*, 2016; Lavell & Maskrey, 2013). Disaster risk is still predominantly seen as exogenous and unforeseen shocks rather than as endogenous in many developing countries (Chipangura *et al.*, 2017; Lavell & Maskrey, 2013).

## **1.6 RESEARCH METHODOLOGY**

Methodology is the pivot of a study because it discusses how theoretical concepts are related to empirical testing. A research methodology forms the operational framework within which facts are placed so that their meaning may be seen in the context of the research (Leedy, 1993). The methodology that is applied to gather data to answer the research questions is discussed in detail below.

### 1.6.1 Research process

This thesis followed the article format. Thus the research questions highlighted in Section 1.3 were developed to produce four research articles that were submitted to reputable peer reviewed international journals. The four articles were developed in a process that unfolded over a period of four years. The research process had 3 stages as shown in Figure 1.1. In stage 1, the theoretical foundation of the study was established. In stage 2, how disaster risk is framed and frame tractability was explored. Finally, in stage 3 a constructivist framework for disaster risk policy was developed.



**Figure 1.1: Phases of the research process**

#### *Stage I*

Article 1 was developed in this Stage. It sought to answer Research Question 1 (see Section 1.3). The article compared in epistemological terms, the objectivist and the social constructivist perspectives of disaster risk analysis, which is necessary to explain how knowledge production of disaster risk is carried out. In particular, the article sought to explore the implications of objectivism and social constructivism in disaster risk which is essential in explaining why disaster risk has different meanings and consequently policy responses.

#### *Stage 2*

As shown in Figure 1, articles 2 and 3 were developed from article 1. Article 2 sought to answer Research Question 2. This article sought to critically explore the perceptions of disaster risk practitioners and the local people on disaster risk in order to clarify on how

people interpret risk in Zimbabwe. The results of the study indicated that disaster risk is generally framed using the objectivist paradigm by practitioners. This finding informed the development of article 3 which sought to investigate what the objectivist frame of disaster risk means for disaster risk policy designs in Zimbabwe and with what consequences for their implementation.

### *Stage 3*

The results obtained from stage 2 gave a rationale for article 4. The article sought to answer research Questions 4 and 5 (see Section 1.3). Article 4 sought to develop a comprehensive framework for disaster risk policy based on the social constructivism perspective of disaster risk in order to deal with the fallibility of the objectivist frame as presented in articles 2 and 3.

### **1.6.2 Research philosophy**

This research was approached from an interpretivism philosophy in an effort to address the research objectives elicited above in Section 1.4. According to Crotty (1998), interpretivism philosophical position focuses on the exploration of the way people interpret and make sense of their experiences in the world in which they live and how the context of events and situations and the placement of these within wider social environments have impacted on constructed understandings. Under interpretivism the ontological thought is relativist, seeking to understand the identities of, the meanings attributed by and the experiences of different populations, against a background of competing perspectives on life and the world, within the setting being investigated (Guba, 1990). Interpretivism positions are founded on the theoretical belief that reality is socially constructed and fluid. Interpretivism assumes that there is no objective knowledge independent of thinking (Grbich, 2007). Thus findings or knowledge claims are created as an investigation proceeds. That is, findings emerge through dialogue in which conflicting interpretations are negotiated among members of a community.

A dialogue between researchers and respondents is therefore critical. According to Creswell (2007) it is through this dialectical process that a more informed and sophisticated understanding of the social world can be created. Interpretive research is thus

guided by the researcher's set of beliefs and feelings about the world and how it should be understood and studied (Denzin & Lincoln, 2003). According to Fryer (1991), the researchers operating within the framework of the interpretative paradigm are focused on investigating the complexity, authenticity, contextualization, shared subjectivity of the researcher and the researched, and minimization of illusion. Using the interpretivism perspective, this research provided a detailed analysis of how local experiences and perceptions shape the way in which disasters are interpreted, read, analyzed and understood within local priorities and knowledge systems (Bongo *et al.*, 2013b). This provides means to understand the discursive dimension of disaster risk perceptions shape the way in which disasters are interpreted, how and why disasters are framed the way they are framed and the implications of this on policy formulation and implementation.

### **1.6.3 Research approach**

A qualitative study was undertaken to understand social phenomena created from the perceptions and consequent actions of social actors (Saunders *et al.*, 2009) in examining how disaster risk “problems” are framed and the implications of framing on policy formulation and implementation in Zimbabwe. Qualitative research shares the theoretical assumptions of the interpretative paradigm, which as Morgan (1980) noted, is based on the view that social reality is created and sustained through the subjective experience of people involved in communication. Qualitative research focuses on accurately describing, decoding, and interpreting the meanings of phenomena occurring in their normal social contexts (Fryer, 1991). As Darlington and Scott (2003) argue, qualitative research acknowledges that there are multiple realities and proposes that the condition of measurability necessary in quantitative and experimental research might limit internal validity and miss out important aspects of reality. Thus, it refers to research about people's lives, lived experiences, behaviours, emotions and feelings, as well as about organisational functioning. Qualitative research can be naturalistic, holistic or inductive (Terre Blanche *et al.*, 2009). This research used the inductive research approach in order to gain an understanding of the meanings people attach to disaster risk and disaster events. According to Patton (1990:40), inductive approach is defined as an “immersion in the details and specifics of the data to discover important categories dimensions and interrelationships;

and it begins by exploring genuinely open questions rather than testing theoretically derived hypothesis.”

The qualitative type of research was chosen because; (1) this research effort attempts to understand behaviour in terms of subjective contexts of meanings. This research is centred on those aspects of human behaviour that are difficult to quantify e.g. perception, thus quantitative research would not be an ideal method. (2) Qualitative research is more likely to take place in a natural setting (Marshall & Rossman, 1989). This means that topics for study focus on everyday activity as “defined, enacted, smoothed, and made problematic by persons going about their normal routines” (Van Maanen, 1983: 255). (3) Qualitative research is less likely to impose restrictive a priori classification on the collection of data. According to Cassell and Symon (1994), it is less driven by very specific hypotheses and categorical frameworks and more concerned with emergent themes and idiographic descriptions. (4) Qualitative research allows respondents to “speak for themselves” and define, not only through their words but also in their actions, the social worlds in which they live their lives and make their decisions (Ruyter & Scholl, 1998). According to Ueltzhoffer and Ascheberg (1999), qualitative methods elucidate the individual’s subjective interpretative patterns, his/her personal experiences, viewpoints and motives, and thus his/her creative potential as well.

#### **1.6.4 Research strategy**

To explore the objectives of this study, this research focused on Zimbabwe’s disaster risk management system as a case study. The case study was thus analysed within the context of the Zimbabwe’s Civil Protection Act of 1989 which was amended in 1992 and 2001. The Civil Protection Act guides the national system that formulates and implements policies regarding disaster risk prevention. Therefore, the study of how practitioners view and implement the Civil Protection Act provides relevant knowledge for inquiring into the disaster risk problem framing of disaster risk. The study also focuses on the prevention system in Zimbabwe in order to cover all the institutional dimensions. A case study was chosen because it provides an in-depth insight into the dynamics of disaster risk problem framing. It is flexible, typically small-scale and exploratory, and the results obtained are

concrete, real-life like and full of ideas (Ruyter & Scholl, 1998), all of which are key aims of this research.

### 1.6.5 Data collection methods and sampling

Data collection was mainly through semi-structured interviews (SSIs). Interviews can be regarded as face-to-face interpersonal role situations in which an interviewer asks respondents questions designed to obtain answers that are important to the research questions (Saunders *et al.*, 2009). These interviews therefore provided a deep understanding of disaster risk problem framing in Zimbabwe. The advantages of semi-structured interviews for this research are that they allow for comparability between responses and yet have the flexibility for the interviewer to suggest some information that may be left out by the respondents (Mouton, 2001). Overall, a total of 56 semi-structured interviews were conducted as shown in Table 1.1

|                       | Number of SSIs |
|-----------------------|----------------|
| Article 1 (Chapter 2) | 0              |
| Article 2 (Chapter 3) | 21             |
| Article 3 (Chapter 4) | 15             |
| Article 4 (Chapter 5) | 20             |
| <b>Total</b>          | <b>56</b>      |

Table 1.1 Summary of semi-structured interviews conducted

To augment primary data, literature review was used to analyse the vocabulary used to describe disaster risk in books, policy documents and research documents. Literature sources ranged from legal and policy documents journal articles to academic books, among others. Data collection and sampling techniques varied according to research objective for this research as described below:

***Objective 1: Define and explore constructivism and objectivism within the context of disaster risk.***

In addressing this objective, an extensive literature review was conducted to conceptualise and contextualise social constructivism and objectivism in the context of disaster risk. Different search combinations were used to find relevant literature. *Constructivism and objectivism* were combined with words like *disaster*, *risk*, *disaster risk*, *vulnerability* and

*emergency management*. An assessment of the credibility of the literature gathered from different sources was done mainly by cross-examining different authors' logic of argumentation and conclusions. Literature sources ranged from academic books in disaster risk management and policy studies, scholarly journal articles on disaster risk and policy studies, to United Nations reports on disaster risk. Secondary data provided information on a global scale and a rich depth of practical examples and applications of the social constructivism and objectivism perspectives in disaster risk management. Secondary data also provided latest information on a global scale and a rich depth of practical examples and applications of the constructivism and objectivism perspectives in disaster risk management.

***Objective 2: Investigate how disaster risk problem is framed in Zimbabwe.***

In addressing this objective, the study used a literature review and qualitative semi-structured interviews in order to explore how various perceptions of disaster risk may influence disaster risk problem framing in Zimbabwe. A literature review was carried out to analyse the vocabulary used to describe disaster risk in books, policy documents and research documents. Most of the literature was found through electronic databases. Libraries in Zimbabwe and search engines like Google Scholar were also utilised. Different search combinations were used to find relevant documents. *Framing* was thus combined with words like *disaster risk*, *perception*, *crisis*, as well as with *communication*. With the purpose of finding possible discussions on definitions, *framing* was also combined with *definition*, *meaning*, and so forth. Semi-structured interviews with disaster risk management practitioners and the local people in Zimbabwe were conducted to investigate how disaster risk problems are framed. The semi-structured interviews were designed to collect information according to three specific aspects: (a) understanding how disaster risk is defined; (b) understanding disaster risk problems, (c) understanding what influences people to have a particular disaster risk problem frame. In selecting practitioners for semi-structured interviews, senior managers and specialists in disaster risk management were purposively selected from government departments, non-governmental organisations (NGOs) and universities. These practitioners were selected from about forty organisations that participate in the national civil protection committee. In total, ten interviews were conducted, and these included four officers from four government departments (health, security, local government and metrological services), three

programme managers from three NGOs (of the three NGOs, two deal with food security while one deals with water sanitation and hygiene issues), and three academic staff from two universities (one specialised in disaster risk management, one in development studies and one in sociology). To compare how disaster risk is framed between practitioners and non practitioners local people who had experienced disasters were selected using the snowball technique. The snowball sampling method was used during the development of the interviews, by asking village heads for the names of elderly people who had experienced more than one disaster from those that have been recorded in Zimbabwe and were likely to be knowledgeable about disaster risk. In total, eleven interviews were conducted with local people from five districts (Harare Rural, Chirumanzu, Tsholotsho, Masvingo Rural and Gwanda) that were purposively selected from a total of fifty-nine districts in Zimbabwe.

***Objective 3: Explore and examine how disaster risk ‘problem’ framing shape the emergence and nature of responses at policy level***

To address this objective, data was collected through literature search and qualitative semi-structured interviews. Most of the literature was found through electronic databases. Libraries in Zimbabwe and search engines like Google Scholar were also utilised. Different search combinations were used to find relevant literature. *Policy* was combined with words like *implementation, framing, tractability and disaster risk*. A critical evaluation of the credibility of the literature was done mainly by cross-examining different authors’ logic of argumentation and conclusions. The empirical part of the research used semi-structured interviews to explore the tractability of policy frames in Zimbabwe. Interviews were designed to collect information on the factors affecting tractability of the objectivist frame of disaster risk in implementation. In selecting practitioners, senior managers and specialists in disaster risk management in Zimbabwe were purposively selected from government departments, non-governmental organisations (NGOs) and universities. These practitioners were selected from about forty organisations that participate in the national civil protection committee. In total, fifteen interviews were conducted, and these included five officers from four government departments, five programme managers from four NGOs, and five academic staff from three universities.

***Objective 4: Adapt and contextualise an appropriate constructivist framework for effective disaster risk framing in Zimbabwe.***

A detailed literature review was conducted in order to identify the key pillars of constructivism. In this context, the literature review ensured that knowledge on constructivism was up to date and constructivism aspects which have been previously explored were not going to be reinvented. Most of the literature was obtained through electronic databases. Different search combinations were used to find relevant documents. The concept of *constructivism* was combined with key words like *disaster risk*, *deliberation*, *framing* and *framework*. A critical evaluation of the credibility of the literature was done mainly by cross-examining different authors' logic of argumentation and conclusions. The empirical part of the research used semi-structured interviews to explore what could a constructivist framework entail. Semi-structured interviews were designed to collect information on what could be included in a social constructivist framework for disaster risk. Twenty interviews were conducted with experts who were purposively selected from about forty organisations that participate in the national civil protection committee. These included six officers from three government departments, eight programme managers from four NGOs, and six academic staff from three universities.

#### **1.6.6 Data analysis**

Data from both interviews and literature reviews were analysed using content and contextual analysis techniques. Content analysis focused on the content of communication, such as interviews and speeches on the conflict potentials of disaster risk problem framing (Babbie, 2012). Content analysis allowed determining and analysing what, how and why people talk about disaster risk problems. Contextual analysis was used to analyse collected data on the basis of the contexts. Whole documents were imported to NVivo 11 computer software and after reading the document, the main ideas were summarised. For the semi-structured interviews, records were fully transcribed to Microsoft Word documents and were imported into NVivo. This allowed the development of initial code skeletons which included the main categories based on the main themes discussed in the interviews. The initial coding was followed by topic coding, where different topics discussed in the different passages of the interviews, were placed on the first hierarchy nodes of the tree

node. Analytical coding (Richards, 2009) was then performed to generate new categories that formed the second hierarchy nodes. Using the Word Frequency query, word clusters were formed, and the thematic codes were derived from recurring phrases and word clusters

## **1.7 DIVISION OF CHAPTERS**

The thesis comprises the Introduction and Orientation, Four Research Papers and a Conclusion.

### **Chapter 1: Orientation and problem statement**

This chapter sets the papers in context by discussing the need for, and emergence of, disaster risk problem framing, and lays out the specific challenges the articles will address.

### **Chapter 2 - Article 1: An exploration of objectivism and social constructivism within the context of disaster risk**

This article sought to answer the first research question - *What is constructivism and objectivism within the context of disaster risk reduction?* In answering this research question, the article compares, in epistemological terms, the objectivist and the constructivist perspectives of disaster risk analysis, which is essential in explaining how knowledge of disaster risk is produced. Moreover, the comparisons will arguably help in explaining why disaster risk has different frames and consequently policy responses

### **Chapter 3 - Article 2: Disaster risk problem framing: Insights from societal perceptions in Zimbabwe**

This article sought to answer the second research question: *How is disaster risk problem framed in Zimbabwe.* The article sought to critically explore societal perceptions of disaster risk problems in Zimbabwe in order to give them meaning and render them manageable.

### **Chapter 4 - Article 3: An exploration of the tractability of the objectivist frame of disaster risk in policy implementation in Zimbabwe**

This article sought to answer the third research question: *How does disaster risk “problem” framing shape the emergence and nature of responses at policy level?* Using Tokwe-Mukosi flood disaster as a case study, the article sought investigate what the objectivist frame of disaster risk means for disaster risk policy designs in Zimbabwe and with what consequences for their implementation.

#### **Chapter 5 - Article 4: An appropriate constructivist framework for effective disaster risk framing in Zimbabwe**

This article sought to answer the fourth research question: *What should a constructivist disaster risk framing framework entail?* This research question is motivated by the desire to deal with the fallibility of the objectivist perspective of disaster risk and to translate the conceptualization of disaster risk as socially constructed into a practical set of arrangements that practitioners can use to deepen the contribution of the at-risk publics in disaster risk reduction policy formulation.

#### **Chapter 6: Conclusions**

This chapter presents the conclusions from the whole study and recommendations for further research. It will reflect on the practical and theoretical contribution of a constructivist framework in disaster problem framing in the study of disaster risk policy process.

### **1.8 CONCLUSION**

This chapter aimed to provide the reader with an overview of the study and understanding of the research process which was followed in order to reach a conclusion on the problem statement. Consequently, the chapter introduced the main issues that necessitated the study. The research questions and objectives were highlighted to help direct the study. These were followed by the research methods applied in the study. This chapter provided the reader with central theoretical statements underlying the study. It also attempted to explain the research process that was followed in order to meet the objectives of the study. The chapter concluded by mapping out the structure of the thesis to make it easier for the reader to follow. The next 4 chapters, chapter 2, 3, 4, 5 are articles that address research

questions 1, 2, 3, 4 respectively highlighted in Section 1.3. Chapter 6 will provide conclusions for the study and highlight the contributions of this thesis to disaster risk reduction efforts.

## **CHAPTER 2: DISASTER RISK THEORETICAL FOUNDATION**

### **Article 1: An exploration of objectivism and social constructivism within the context of disaster risk**

# An exploration of objectivism and social constructivism within the context of disaster risk

Objectivism  
and social  
constructivism

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## Abstract

**Purpose** – The purpose of this paper is to understand the meaning of social constructivism and objectivism within the context of disaster risk from which disaster risk policy can be analysed. In particular, the paper attempts to explore the implications of social constructivism and objectivism in disaster risk which is essential in explaining why disaster risk has different nuances and consequently policy responses.

**Design/methodology/approach** – A literature survey was used to explore social constructivism and objectivism within the context of disaster risk. The survey involved documentary searches from academic books, journal articles and disaster risk reports to serve as primary research data.

**Findings** – The analysis revealed that viewing and managing disasters through the lens of objectivism might not yield the desired results of minimising risk as it conceals the vulnerabilities to disaster risk. The objectivist perspective is therefore in itself considered inadequate for the study of disaster risk and that social constructivist assumptions are required in order to analyse disaster risk. Towards this end, social constructivism offers a discursive approach to disaster risk policy science; one that more optimally illuminates competing local perspectives.

**Originality/value** – An epistemological and ontological assessment of social constructivism and objectivism in disaster risk can assist greatly in understanding the discursive dimension of disaster risk through explanations of how and why disasters are framed the way they are framed and the implications of this on policy formulation and implementation.

**Keywords** Disasters, Disaster risk, Objectivism, Social constructivism

**Paper type** Literature review

## Introduction

The devastating consequences and the financial and human crises that typically follow catastrophes can often be traced to policies unsuited to the emerging scales of the problems they confront (Handmer and Dovers, 2013). These policies and practices, as Shefali (2009) noted, have been influenced by conceptual shifts in the academic discourse of disaster risk. As such multiple conceptual and thematic foci have emerged from a variety of origins (Oliver-Smith, 1999), emanating from the internal complexity of the phenomenon and the diversity of the disciplines and actors active in the field of disasters and disaster risk management (Warner *et al.*, 2002). In disaster risk, when disciplines join forces to study certain risk objects or phenomena, clashes may become evident of competing paradigms, research traditions, epistemologies and modes of thought (Van der Waldt, 2014). Consequently, of concern in disaster risk, regulatory decision making has been whether disaster risk should be viewed as an objectively identifiable phenomenon



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(objectivism) or a subjective, socially constructed process (constructivism). As with nearly all conceptual processes, the epistemological foundations and context are crucial (Cardona, 2004) in understanding disaster risk. This paper aims to investigate, ontologically and epistemologically, what is meant by the concepts of social constructivism and objectivism within the context of disaster risk. In particular, the paper attempts to explore the implications of constructivism and objectivism in disaster risk which is essential in explaining why disaster risk has different nuances and consequently policy responses. It is conjectured that the findings will stimulate further debate about the theoretical conditions that inform disaster risk policy.

#### *Disaster risk knowledge production*

Van der Waladt (2014) noted that since the dawn of civilization, humankind has always been fascinated by gaining insight, knowledge and truth about perceived reality. In the study of disaster risk, objectivism and social constructivism have emerged as the two common extremes that characterize the ontological and epistemological viewpoints in disaster risk research and practice. According to Blaikie (1993) ontology is defined as “the science or study of being” and it deals with the nature of reality. It is associated with a central question of whether social entities need to be perceived as objective reality that really exist or subjective reality that is created in our minds. Epistemology is a branch of philosophy that deals with the study of knowledge. It refers to a way of understanding and explaining how people know what they know (Crotty, 1998) and alternative knowledge claims (Creswell, 2003). It is concerned with providing a philosophical grounding for deciding what kinds of knowledge are possible and how researchers can ensure that they are both adequate and legitimate (Crotty, 1998). As McEntire and Marshall (2003, p. 119) noted, epistemology uncovers the strengths and weaknesses of values, assumptions and methods relied upon for theory and policy development. Discourses, arguments and language within which opinions are formed are thus critical in determining reality. One’s own ontological and epistemological commitment therefore underpin how one makes sense of the world and influence the approach one takes to disaster risk. Arguably, these ontological and epistemological standpoints have repercussions on disaster risk policy formulation and implementation because the way in which a problem is defined and framed circumscribes the search for solutions to that problem (Handmer and Dovers, 2013).

Social constructivism and objectivism positions can be regarded as frameworks within which theories are built, that fundamentally influences how people view disaster risk. These frameworks in turn determine people’s perspectives, and shapes their understanding of how issues and phenomena are connected. This has particular value for disaster risk studies and practice. Holding a particular world view in disaster risk, influences one’s personal behaviour, professional practice, and ultimately the position one takes with regard to policy responses. Understanding how disaster risk knowledge is produced is therefore not only part of a particular theory and methodology, but it contributes to a clearer vision of disaster risk as a field of study (Perry, 2007). It prompts an exploration of past and emerging dimensions of disaster risk (Oliver-Smith, 1999). On a practical level, it assists in sorting out perceptible anomalies in research findings and sets the stage for a sound disaster risk policy framework. In developing countries, where disaster risk science and management is often imported from developed countries (Hilhorst, 2003), the conceptual underpinnings of disaster risk reduction could be misinterpreted or misused. This would imply that from the very onset policy arrangements and instrumental systems that flow from these

underpinnings could also be flawed and unfit for their intended purpose (Lavell and Maskrey, 2013, p. 6). Therefore, epistemological and ontological assessment of social constructivism and objectivism in disaster risk can assist in understanding the discursive dimension of disaster risk through explanations of how and why disasters are framed for purposes of policy formulation and implementation.

### Research questions and methodology

On the basis of what has been stated above three research questions have been identified:

- RQ1. What is constructivism and objectivism within the context of disaster risk reduction?
- RQ2. What are the implications of constructivism and objectivism in disaster risk?
- RQ3. What arguments can be advanced in support of constructivism in understanding disaster risk?

In answering the research questions, a literature review was conducted to conceptualise and contextualise social constructivism and objectivism in the context of disaster risk. Such sources ranged from academic books in disaster risk management and policy studies, scholarly journal articles on disaster risk and policy studies, to United Nations reports on disaster risk. In order to find relevant literature, the terms, disaster risk, constructivism and objectivism were used on their own and in different combinations in online library resources and Google Scholar search engine. A critical evaluation of the credibility of the literature was done mainly by cross-examining different authors' chains of argument and conclusions. Secondary data provided information on a global scale and a rich depth of practical examples and applications of the social constructivism and objectivism perspectives in disaster risk management.

### Objectivism vs social constructivism

Objectivism may be viewed as the cornerstone of naturalism or scientism which advocates the application of natural science to society (Mills *et al.*, 2010). It can be described as both an ontology and epistemology. Ontologically, objectivism claims that there is a reality "in itself," existing independently of the human mind (Mills *et al.*, 2010, p. 619). According to Lakoff (1987, p. 160), reality consists of entities that have fixed properties and relations holding them at any instant. Lakoff (1987) further argued that, reality exists through the structures of these entities and is independent of any human understanding. Epistemologically, reality may be known by the human mind (Mills *et al.*, 2010, p. 619). The mind functions as a mirror of nature, creating representations of the real world that require a correspondence to the external world and to know is to have these correct representations (Lakoff, 1987). For Mills *et al.* (2010), it is possible to be objective by first dividing the world into subjects and objects and then by focusing attention on those potential phenomenon of study that are reducible to being studied as objects in universal and value-free ways. Objectivism thus underpins the positivist stance, a theory of knowledge that asserts the possibility of generating objective knowledge through the value-free collection of empirical data. Positivism is based on the belief that there is an objective reality and that knowledge exists as something that can be observed and measured. According to Eriksson and Kovalainen (2008) positivism implies that the social world can be known methodologically through the use of objective instruments of measurement operated by a rational and neutral researcher.

Positivists argue that knowledge can be deduced from careful processes of hypothesising, variable identification and measurement within experimental designs (Grbich, 2007). Positivism thus refers to a belief that social science must be scientific in the same way as physical sciences are. Causalities are identified and predictions are made about facts which have been properly evaluated by mathematical logic. This positivist approach has generally led to the use of quantitative research methods. Advocates of the quantitative approach are therefore described as “objective scientists committed to the discovery of quantifiable information” (Duffy, 1986). In short, positivism is said to be objective, deductive, nomothetic, quantitative, explanatory and universal (Mills *et al.*, 2010; Grbich, 2007; Duffy, 1986)

Critiques of objectivism such as Thomas Kuhn (1964), and Kenneth Gergen (1985) among others claim that scientific beliefs are “theory-laden” and “unsound” in understanding reality. These authors have argued that the comprehension of science can never rely wholly upon “objectivity” alone because objective conclusions are ultimately founded upon the subjective conditioning/worldview of its researchers and participants. Constructivism, according to Mariyani-Squire (1999), builds upon this point to criticise the objectivist epistemology and ontology. Social constructivism positions are founded on the theoretical belief that reality is socially constructed and fluid. It repudiates the possibility of a theory neutral observational language (Burr, 1995) and there is nothing like “ultimate true knowledge”, but whatever is perceived as “truth” is as mainly a result of subjective socio-cultural consensus of views, which is perceived as “reality”. Social constructivism assumes that there is no objective knowledge independent of thinking (Grbich, 2007). It focuses on the exploration of the way people interpret and make sense of their experiences in the world in which they live, and how the context of events and situations and the placement of these within wider social environments have impacted on constructed understandings (Crotty, 1998). According to Creswell (2007) it is through a dialectical process that a more informed and sophisticated understanding of the social world can be created. In this respect Mariyani-Squire (1999, p. 102) makes an analogous argument, “if a chair that was blasted into space was picked up by extra-terrestrials, what would they make of it? What would it be to them? If one assumes that they employ a radically different conceptual scheme from us, then it would not be a chair for them. This is because a chair is not only constituted by its physical structure but also by the ideas about its use”. Similarly Horlick-Jones (1995, p. 307) argues that perceptions strongly reflect the preoccupations and circumstances of whoever is doing the perceiving. Social constructivism has tended to favour qualitative research methods to study social reality which is created and sustained through the subjective experience of people. Qualitative researchers are concerned in their research with attempting to accurately describe, decode and interpret the meanings of phenomena occurring in their normal social contexts (Fryer, 1991). However, constructivism has largely been criticised for the self-refutation of relativism (Mariyani-Squire, 1999).

#### *Implications of objectivism in disaster risk*

Following the objectivist view, disaster risk is conceived of as an objective entity. Discoveries in disciplines shaped by the objectivist perspective such as natural and physical sciences made risk appear as understandable, measurable and possible to master (Althaus, 2005). According to Cardona (2004), this view has been largely shaped by geophysicists, seismologists, meteorologists, geologists and epidemiologists among others, who have tended to the idea that disaster risk is a topic exclusively associated

with the physical phenomena that generate natural disaster events and can be objectively assessed. Thus in ontological terms, disaster risk can be viewed as the real, quantifiable product of nature's impact on society; independent from the social constructions of a society. According to Wijkman and Timberlake (1984), before 1980, research was mainly channelled towards understanding the physical aspects of disaster risk. In order to understand the physical aspects, risk became a calculated phenomenon (Althaus, 2005) and potential risk appeared as objective fact and absolute truth (Lupton, 1999). As such, risk has been generally defined as a probability of loss in relation to the impact of a specific hazard (Shefali, 2009) or as the integrated combination of the probability of occurrences; the spectrum of event magnitudes; and the spectrum of resultant personal injuries and related costs (Starr *et al.*, 1976). However, Lavell and Maskrey (2013) argue that by placing emphasis on losses, disaster risk reduction has fallen into the seductive use of a language of deficit and negativity, becoming trapped by the concepts it harbours and promotes.

From an objectivist perspective, risk has been expressed in the following notation: Disaster Risk = Hazard  $\times$  Vulnerability. In this notation, a hazard has a probability of occurrence within a specified period of time and within a given area, and intensity while vulnerability is the physical vulnerability (a narrow focus on vulnerability), specified as the degree of damage to a specific element at-risk caused by a hazard (UNISDR, 2004). Kaplan and Garrick (1981) also proposed a formula of risk as follows:  $R = \{ < S_i, P_i, X_i > \}$  where  $i = 1, 2, 3, \dots, n$ . The authors saw risk ( $R$ ) as a set of three variables that consist of scenarios ( $S_i$ ), probability of different scenarios ( $P_i$ ) and the consequences of the different scenarios ( $X_i$ ). These three variables as Kaplan and Garrick (1981) noted answer the questions: What can happen? (Scenario), How likely is it that that will happen? (Probability) and if it does happen, what are the consequences? However, it is of fundamental importance as Buckle (2004, p. 8) points out, to identify and understand the links between risk, vulnerability, resilience and capacity that go beyond the iconic (though simplistic and misleading) "formula of Risk = Vulnerability multiplied by Resilience and divided by Hazard".

The objectivist thinking employed in disaster risk studies has put more emphasis on the hazards and nature, and as such disaster risk has generally been framed as "acts of nature". By this, nature has been regarded as the cause, the condition, and the propelling force that damages, destroys and kills (Fordham *et al.*, 2013). Managing disaster risk was thus through combating, and controlling nature with technology and engineering works (Lowe *et al.*, 2007). In disaster risk management importance was therefore put on methodological framework derived from the neopositivist/empiricist methods (Fischer, 2007, p. 223). This is evident in the report published on natural disasters and vulnerability analysis by United Nations Disaster Relief Office, in 1980 and the declaration of the 1990s as the International Decade for Natural Disaster Reduction, by the United Nations General Assembly. Emphasis was on rigorous quantitative analysis, objective separation of facts and values and the search of generalisable findings whose validity would be independent of the particular social context from which they are drawn (Fischer, 2007). The goals of the decade in General Assembly, resolution A/RES/44/236 clearly support the technocratic approach to disaster risk. For example, goal (c) seek to foster scientific and engineering endeavours aimed at closing critical gaps in knowledge in order to reduce loss of life and property and goal (e) seek to develop measures for the assessment, prediction, prevention and mitigation of natural disasters through programmes of technical assistance and technology transfer, demonstration projects, and education and training, tailored to specific hazards and locations, and to evaluate the effectiveness of those programmes.

With support at United Nations level, the emphasis on managing “natural” disasters have become conventional wisdom and is locked into policies, governance arrangements and instrumental systems (Lavell and Maskrey, 2013). For example, in Zimbabwe, the Civil Protection Act of 1989 still place emphasis on “natural” disasters (Bongo *et al.*, 2013). The key driver of disasters is still considered to be large-scale physical events (extreme events), which are often taken to be synonymous with the disaster itself (Lavell and Maskrey, 2013). Several governments have been lured into placing their trust in grand physical prevention and mitigation measures such as dams, early warning systems and satellite monitoring (Wijkman and Timberlake, 1984). These authors went on to argue that if such measures consume a disproportionate amount of money and effort – if they serve as an excuse to ignore the hazards built into the victim’s societies which make disasters worse – then they can do more harm than good.

Disciplines such as geography, urban planning, physics, economics and environmental management have helped to strengthen the use of socio-technical approach to disaster risk (Cardona, 2004). Maps, computer science tools such as geographic information systems, damage matrixes, loss functions, fragility curves and vulnerability indices, have therefore been used to estimate potential loss in case of future disasters. Such analysis of risk has increasingly been useful for contributing data on hazards or risks to physical and territorial planning specialists, as an ingredient for the decision-making process (Cardona, 2004). The objectivist view as Aragón (2001) argues, holds that as long as science advances as the result of the application of scientific-technical devices such as satellites and monitoring apparatus, knowledge of natural phenomena will increase and improve to the extent that phenomena will be accurately and completely understood and controlled thereby minimising the devastating consequences of natural phenomena on society.

#### *Implications of constructivism in disaster risk*

From a constructivist perspective, disaster risk is both ontologically and epistemologically subjective. Evidence from the UNISDR Global Assessment Reports (GAR09; GAR11; GAR13) supports the assertion that exposure and vulnerability to physical hazards are socially constructed through the interaction of economic, cultural and political processes operating at several different scales (Lavell and Maskrey, 2013). Disasters are thus defined as a social phenomenon, such that disaster is socially constructed and rooted in the social structure of the community affected by a natural hazard (Quarantelli, 2005). Constructivism views disaster risk as socially produced through the formation of a common, and shared definition (Lovekamp and Arlikatti, 2013). According to Lavell *et al.* (2012, p. 36), constructivism reflects an emerging understanding that disaster risk and disaster, while potentiated by an objective, physical condition, are fundamentally a “social construction”, the result of social choice, social constraints, and societal action and inaction. Such a move towards the social dimensions reflects a shift in understanding disaster risk from an act of nature to the intersection of society and nature, and avoidable human constructions. Social constructivism acknowledges that disaster risk in general is not generated by hazards that impinge on societies and communities alone, but rather it is the product of social structure and dominant institutional practices. This perspective suggests that exploring disaster risk is contingent on how the notions of risk come to be constructed, identified and dealt with in particular historical, socio-cultural and political contexts (Shefali, 2009). Constructivism has been adopted in the sociological risk literature and

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among civil society activist groups across parts of the developing world, who emphasise “relative” contexts as being central to understanding risk (Shefali, 2009).

While objectivism naturalises disaster risk, constructivism denaturalises disaster risk. By denaturalising natural disasters, Demeritt (2002) referring to O’Keefe *et al.* (1976), argues that constructivism makes two fundamental claims: first, without people there is no disaster; and second, what makes a disaster disastrous is not natural in the sense of “extreme physical events”. These two claims are rooted in the concept of vulnerability and exposure to disaster risk. According to O’Keefe *et al.* (1976), disaster risk marks the interface between an extreme physical phenomenon and a vulnerable human population. UNISDR (2004, p. 16) defines vulnerability as “the condition determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to loss from hazard impacts”. Lowe *et al.* (2007) also highlighted the importance of the human element in disaster risk as they argued that, the vulnerability approach is people centred and it concentrates on the social, political and cultural factors of people that make them more vulnerable to loss from a natural hazard. Wisner *et al.* (2004, p. 11) sees vulnerability as the characteristics of a person or a group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of natural hazard. In explaining the manner in which vulnerable conditions are created, Blaikie *et al.* (1994) propose two inter-related models the Pressure and Release Model (PAR) and the Access Model (AM). The PAR explains the progression of vulnerability, from unsafe conditions through economic and social dynamic pressures to the root causes from specific relations of exploitation, discrimination within the political economy (Wisner *et al.*, 2004). The AM explains how the different components such as household budget, income opportunities, class relations and structures of domination change in different ways over time after the disaster (Wisner *et al.*, 2004). This view of vulnerability links disaster risk with the development theory because the marginalisation process shapes who in society are vulnerable to risk and whether risk turns into disaster (Pelling, 2003). According to Alexander (2000), in vulnerability, people not physical forces are the principal cause of risks and disasters. Extreme geological or climactic events must therefore be understood as leading to disasters only in the human context in which they occur (Demeritt, 2002). Calling disasters “natural” therefore ignores the socioeconomic context of vulnerability (Lavell *et al.*, 2012) and one can argue that there is no such thing as a “natural” disaster because disasters and disaster risk are socially constructed concepts. Managing disaster risk thus focuses on reducing vulnerability (Alexander, 2000). According to Demeritt (2002), human beings have the power to reduce, or even eliminate, the toll from natural disasters.

### **In pursuit of social constructivism**

This paper proposes that disasters are best conceptualised as non-routine social problems. The article contents with Adam and Thompson’s (2002) argument that managing risks should abandon objectivism and embrace constructivism – the idea that risk is inherently subjective: something that we project onto whatever it is that is “out there”. This is because as Bongo *et al.* (2013) argues, when people experience hazard events and disasters, they perceive these phenomena through lenses that are largely shaped by their local day-to-day experiences and some external influence. There are at least two major arguments that can be advanced in support of

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*Increasing evidence of disasters as a social construction*

Despite the growing evidence pointing towards disasters as a social construction, disasters are still regularly described as “natural” disasters, even in specialized publications and forums (Lavell and Maskrey, 2013). However, according to Maplecroft (2011), while the socio-economic impacts of disaster events can be significant in all countries, low and middle-income countries, especially African countries, are notably vulnerable and encounter higher human fatalities even when exposed to hazards of low magnitude. These countries are characterised by high levels of poverty, dense populations, exposure to climate-related events, reliance on flood and drought prone agricultural land (Maplecroft, 2011) and insufficiently modernised relationships with nature make their populations vulnerable to disasters (Hilhorst, 2003). For example, according to Fordham *et al.* (2013, p. 10) the Chilean earthquake in 2010 was 500 times stronger than that in Haiti, yet the death rate that rose for Haiti was roughly 35,000:1. The differential arising directly out of historical colonialism, an ineffective national government, expansive poverty and weakened infrastructure. Smith and Ward (1998) have also argued that floods in developing countries are considered as being rooted in civil war, foreign debt, uncontrolled urbanisation and poor building construction. Moreover, these low and middle income countries bear the highest burden in terms of the proportion of gross domestic product (GDP) lost as a result of disasters. For example, according to AU/NEPAD (2004), the 2000 flood in Mozambique lowered the country’s GDP by about 12 per cent, and the 1992 drought reduced Zimbabwe’s and Zambia’s GDPs by about 9 per cent. One may therefore argue that disaster risk is not only primarily the outcome of geophysical processes, but can be seen as created in social, economic and political systems, including the product of failed development. Disaster risk is therefore more a function of vulnerability than natural hazards (Wisner *et al.*, 2004). In this respect Quarantelli (2005) states that it is not the hurricane wind, or storm surge that makes the disaster; these are the sources of damage. Disasters can thus be seen as the collapse social, economic, political and cultural protections. The majority of people in low and middle income countries are vulnerable because they have poor livelihoods, which are not resilient in the face of shocks. Similarly Van Niekerk (2014) has pointed to the fact that understanding disaster risk should be rooted in development thinking with an emphasis on human-nature interactions.

The development of disaster risk studies within human ecology and the natural sciences, driven by the particular interests of technocrats, has created the paradigmatic view of disasters as non-routine, physical events that have a negative impact on humans and social systems (Williams, 2008). This hazard-centred or technocratic paradigm in which disaster risk is understood has been embedded in a general discourse of capitalist modernity where nature and society have been seen as separated and nature was considered a commodity that can be appropriated and controlled through expert knowledge and modern administration (Hilhorst, 2003, p. 42). As Sarewitz and Pielke (2001) argue, there is something not quite right about this traditional technocratic formulation of the disaster risk problem, which posits that disasters are discrete phenomena that are external to the social or environmental systems upon which they impinge. Mariyani-Squire (1999, p. 102) citing Vogel (1996) argues that, “the physical and social realms are so intimately intertwined that it is impossible to separate them: the social system appears to humans within it in the form of physical things and it is by means of

those [physical] objects that our social practices are organized, and such practices take their meanings from those objects themselves". Thus as Blaikie *et al.* (1994) highlight, disasters have more than physical causes and consequences. For example, technological and civil disasters result predominantly from human mistakes and behaviour. Therefore, disasters cannot be viewed as physical phenomena only, as this ignores the impact of human decisions, and exclude the influence of the built environment and modern technology. Disaster risk thus come into existence through exposure and vulnerability to physical hazards and are socially constructed through the interaction of economic, social, cultural and political processes operating at several different scales (Lavell *et al.*, 2012) hence one can argue that the technocratic focus on disaster risk is limiting.

Furthermore, with too much emphasis on geophysical forces, the ability of society to respond is obviously limited therefore the devastating consequences of disasters continue rise. By naturalising disaster risk, public participation of people at risk is often neglected (Warner *et al.*, 2002) and this undermines people's own capacities and coping strategies (Shaw *et al.*, 2013; Pelling, 2003). Humanity is viewed as powerless victims of "natural" disasters (Jones and Murphy, 2009) and thus, freed from liability for avoiding disasters. When people who have a stake in disaster risk management do not participate, they are unlikely to be wholeheartedly in favour of a policy that is aimed at solving what they do not see to be the problem (Adams and Thompson, 2002). Thus as Williams (2008, p. 1117) propose, institutionalised scientific knowledge and technical expertise have contributed to the proliferation and worsening of risks rather than their amelioration. Probabilistic risk analysis is, however, rarely implemented in its pure form, in part because quantitative estimates of hazard and vulnerability are not always available and are not numbers that are independent of the individuals making those estimates (Lavell *et al.*, 2012, p. 45). Rather, these estimates are determined by a combination of direct physical consequences of an event and the interaction of psychological, social, institutional and cultural processes. As Fordham *et al.* (2013, p. 10) note, objectivism has been criticised for having a limited understanding of the causes of, and solutions to disasters, and fails in particular, to recognise the true nature of social vulnerability and the capacity that related populations bring to bear on their own risk as well as that of the larger society.

### The policy intuitive appeal of constructivism

While the academic literature since the early 1970s had long established the importance of the social constructivism perspective in disaster management (Shefali, 2009), explicit policy acknowledgement of the constructivism perspective has been lacking. Yet conceptually, and increasingly empirically, disaster risk is being accepted as endogenous to human development (Lavell and Maskrey, 2013, p. 6). With this realisation the need to develop public policies that minimise disaster risk and build resilience has been emphasised since the International Strategy for Disaster Reduction, the Southern Africa Development Community Regional Disaster Risk Reduction Strategic Plan, the Hyogo Framework for Action (2005-2015) and the Sendai Framework for Disaster Risk Reduction (2015-2030). Moreover, in recent years there have been calls for a new framing of disaster risk problems by moving away from the overemphasis on natural and anthropogenic hazards, to that of understanding underlying vulnerability and underlying drives which generate disaster risk in the first place and limits at-risk populations to achieve higher levels of resilience through development (Van Niekerk, 2014, p. 2). As Mariyani-Squire (1999) notes, social constructivist position entails some political and policy desirable qualities. He argued that social constructivism allows for a "democratic" plurality of perspectives on an issue, because all perspectives are social

constructions, each and every perspective has an equal “right” to be judged as possibly valid and true for the agents holding to their respective constructions. This is in line with what has been described as the “argumentative turn” by Fischer and Forester (1993). According to Fischer (2007) argumentative turn starts from recognition that multiple perspectives are involved in the interpretation and understanding of social and political reality and the competing definitions of policy problems to which they give rise. In any society there is no one fixed definition of an issue, it is subject to the interpretative manoeuvres of the protagonists (cf. Grafton and Permaloff, 2005). In this light, social conflict becomes a process of successive, competitive problem definitions by opposing sides angling for advantage and issue expansion. An argumentatively oriented deliberative policy analysis therefore, seeks to disarm epistemologically the one-dimensionality objectivity of conventional policy analysis, often advanced as value-neutral scientific policy analysis (Fischer, 2003). Thus social constructivism opens up the possibility of greater integration of traditional democratic activities and the regulation of scientific practices according to the public interest (Mariyani-Squire, 1999).

Furthermore, from an objectivist perspective, disaster risk policy has been focused on controlling nature with technology and engineering works in preparing for and mitigating potential damages (Perry, 2007; Lowe *et al.*, 2007). However, with objectivist disaster risk policy in place, data from EM-DAT (2013) show that since 1900, disasters have been on the rise with devastating consequences. Globally, between 2003 and 2012, 6,699 disasters were reported that caused an average of US \$1.5 trillion in damage with an average of 1,149,920 lives lost and about 2.1 billion people affected (EM-DAT, 2013). When disaster policies are formulated without paying attention to the social context of disasters, the exposure of vulnerable people to disaster risk is hidden. This inhibits the creation of socially sensitive responses at policy level. Thus minimising vulnerabilities and increasing resilience are ignored and disasters continue to wreak havoc on communities. In order to reduce disaster risk and prevent disasters, vulnerability reduction must be the disaster risk policy’s main goal.

### Conclusion

This paper contextualised objectivism and constructivism in the context of disaster risk. It is important to note that objectivism has dominated the field of disaster risk and has influenced the discourses, arguments and language used in disaster risk. Objectivism has viewed disaster risk as the real, quantifiable product of nature’s impact on society; independent from the social constructions of a society and has adopted the technocratic or hazard-centred approach to disaster risk. Whilst objectivism has contributed considerably to the understanding of disaster risk, it has failed to elicit generalisation on the concept of disaster – it remains illusory to construct an objective or universal meaning of disaster (Café, 2012). Its major shortcoming has been its failure to incorporate the social aspects in dealing with disaster risk. Recently, since the 1980s, anthropologists, sociologists and geographers have increasingly challenged the technocratic, hazard-centred approach to disaster. Constructivism, presents an alternative paradigm to objectivism as it suggests that investigating policy is reliant on how risk is constructed, and dealt with in particular historical, socio-cultural and political contexts. Disasters are viewed as socially produced through the formation of a common and shared definition and are rooted in the social structure and reflects the processes of social change. This perspective has advanced framing of disasters as a result of vulnerability of humanity. However, while the academic literature since the early 1970s had long established the importance of the constructivism

perspective in disaster management (Shefali, 2009), explicit policy acknowledgement of the constructivism perspective has been lacking. Further research is therefore needed to explore why governments have been reluctant to come up with disaster risk policies that are based on the social constructivism perspective.

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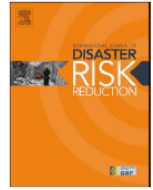
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## **CHAPTER 3: DISASTER RISK PROBLEM FRAMING**

### **Article 2: Disaster risk policy problem framing: Insights from societal perceptions in Zimbabwe**



## Disaster risk problem framing: Insights from societal perceptions in Zimbabwe



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### ABSTRACT

As disasters are on the rise with devastating consequences, understanding the dynamics of disaster risk problem framing is crucial because the way in which a problem is framed circumscribes the search for solutions to that problem. This article sought to critically explore societal perceptions of disaster risk problems in Zimbabwe in order to give them meaning and render them manageable. This study is based on both secondary and primary data collected from disaster risk practitioners and local respondents from a number of districts in Zimbabwe. The results of the study suggest that the Zimbabwe disaster risk management system is dominated by the hazard frame and rival frames such as vulnerability and theistic frames are silenced. The silenced frames (vulnerability and theistic) were found to be crucial in understanding the social construction of disaster risk. The article argues that the locus of disaster risk problem is not to be found primarily in governmental agencies; rather, it is to be found in the communities where risk is generated and experienced. The article concludes that disaster risk problems should not be viewed as unitary and state centred, but as diverse and multi-centred. As such, practitioners should aim for a networked model of engagement where various stakeholders in the society are drawn together to form networks that can debate about disaster risk problems and formulate action plans.

### 1. Introduction

World over, disasters are on the rise with devastating consequences [1]. They result in deaths, destruction and disruption to every aspect of society [2]. Given this context, the need for effective disaster risk reduction policy has never been greater for the safety and well-being of the citizenry [3]. The call for public policies that minimise disaster risk and build resilience has been emphasised since the declaration of the International Decade for Natural Disaster Reduction 1999–2000. Both the Hyogo Framework for Action and the Sendai Framework for Disaster Risk Reduction argue that countries which develop policy, legislative and institutional frameworks for disaster risk reduction have greater capacity to manage risks. Towards this end, there have been significant efforts to strengthen legal, institutional and legislative structures in many countries to minimise the devastating effects of disasters [3]. However, such efforts are being accompanied by rising disaster losses [4]. This raises an important question: how is disaster risk policy problem framed? This question is crucial because many policy changes being implemented to minimise the impact of disasters in many countries continue to be both ineffective and inefficient [4]. As Bradbury [5] argued, if a policy problem is not structured appropri-

ately, that is, if it does not take into account all the dimensions of the problem, policy failures are likely to result. One can argue that, efforts will have been made to solve the wrong problem and as such disasters continue to wreak havoc in many communities.

Framing disaster risk problems in a way that can be effective for policy design calls for understanding the dynamics of problem framing in order to clarify what the problem is, and how policy intends to address it. Such an understanding is crucial because the way in which a problem is framed delineates the search for solutions to that problem. Framing can thus avert or exacerbate the impact of disasters to a community [6]. In averting the impact of disasters, framing marks a departure from a state of failure, where failure is embodied in the destruction caused by a disaster, to a state of success where the effects of a disaster are managed and controlled [7]. In exacerbating disaster risks, framing often leads to poor disaster risk mitigation and preparedness which in turn affect disaster response and recovery [7]. However, whilst there has been a sharp increase in disaster risk management research, an aspect that has remained relatively neglected pertains to research on policy and administration in disaster risk management [2]. Less attention has been given to how societies frame disaster risk problems as a basis for disaster policy formulation [8]. This article

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therefore focuses on how disaster risk problems are framed in order to give them meaning and render them manageable. It seeks to critically explore the perceptions of the society on disaster risk in order to clarify how people interpret risk in Zimbabwe. More specifically, it attempts to answer these questions: (1) what is framing in the context of disaster risk? (2) How do disaster practitioners and local communities frame disaster risk problems? It is conjectured that understanding the dynamics of framing in disaster risk contributes to the general orientation of policy design and the types of policy outputs that are likely to be delivered through implementation [6].

## 2. Background

Zimbabwe is prone to both anthropogenic and natural hazards that are repeatedly taking a heavy toll of life and property. These include floods, landslides, lightning, droughts, epidemics, HIV/AIDS pandemic, fire, transport and industrial accidents [9], and earthquakes [10]. Between 1980 and 2010, thirty-five natural hazard events were reported in Zimbabwe, with 6448 deaths [11]. Of the 35 disasters, 6 were drought occurrences, 7 were floods, 2 were storms, and 20 were epidemic occurrences. On average, 531,886 people were affected by these disasters while economic damages were estimated to be US\$ 2,827,700,000 [11]. In managing disaster risk in Zimbabwe, various “frames” have been used as is discussed below. Prior to Zimbabwe's independence in 1980 disaster risk management was framed as civil defence which was essentially a reactive and response-focused command-and-control approach to disaster management. At Independence (1980), this approach to disaster risk management was adopted and disaster risk was administered through the *Civil Defence Act* of 1982 [12]. The *Civil Defence Act* of 1982 had a rather militaristic connotation because it was designed during the War of Liberation (1965–1979) [12,13]. Framing disaster risk through the lens of security has been criticised in that it creates significant complexities and controversies concerning the provision of humanitarian assistance to populations affected by catastrophic events [14]. Top-down approaches to disaster management associated with the concept of civil defence, have been largely blamed for lack of resilience and poor preparedness on the part of sections of society that are hard hit by disasters in Zimbabwe [12]. In the 1980s and 1990s, a shift in framing from civil defence to civil protection occurred, which promoted an increased emphasis on natural hazards. The *Civil Protection Act* 2001 (Part I, Section 2) [15] defines a disaster as consisting of, “any (a) natural disaster, major accident or other event howsoever caused; or (b) destruction, pollution or scarcity of essential supplies; or (c) disruption of essential services; or (d) influx of refugees; or (e) plague or epidemic or disease; that threatens the life or well-being of the community”. Recently, due to an increase in the number of disasters in Zimbabwe, the government has been reframing emergency management in terms of disaster risk management [12]. Such a shift in framing requires more research on how it can be achieved.

## 3. The concept of framing

In investigating public policy problems, the concept of “framing” has been invoked in trying to understand how societies come to choose policy problems [8]. The application of the framing concept can be traced to the fields of psychology [16] and anthropology [17]. The concept has been applied to a number of different disciplines which include sociology (e.g. Goffman [17]), economics (e.g. Kahneman and Tversky [18]), social-movements research (e.g. Snow and Benford [19]), communication (e.g. Rothman and Salovey [20]) and policy research (e.g. Schön and Rein [21]). According to Goffman [17] and Gray [22] framing can be defined as a process by which actors construct and represent meaning to understand a particular event, process or occurrence. The term “frame” may also refer to schemata of interpretation that enable individuals to locate, perceive, and label that which

happens in their life space and the world at large [17]. Frames can be characterised as organizing principles that enable a particular interpretation of a phenomenon [23]. Such frames organise experience and guide action by rendering particular events as meaningful. As such, to frame is to select some aspects of perceived reality and make them more salient in the communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described [24]. Frames therefore enable members of a group to make sense of events they are engaged in, and contextualise them within a particular set of values, ideas or political agendas, in order to arrive at a shared meaning and sense of purpose [25]. Framing can be categorised as diagnostic or prognostic [19]. Diagnostic framing generally refers to the identification of a problem and who to blame, while prognostic framing is about the identification of a solution to the problem identified in the diagnostic framing [26].

The framing concept is rooted in the constructionist principle that meanings do not automatically or naturally attach themselves to the objects, events, or experiences people encounter, but often arise, instead, through interactively based interpretive processes [26]. In disaster risk, framing is critical in the construction of social reality because it helps in shaping perspectives through which people see risk. The framing concept can be applied to disaster risk because disaster risk theory and practice fundamentally involve the construction of social reality. As Quarantelli [27] argues, disasters are social laboratories for understanding how individuals and institutions interpret disaster risk. Disasters therefore, magnify the interactions of social realities and reveal the main arrangements supporting a community. Oliver-Smith [28], terms the revealing power of disasters as “totalizing”, where environmental, social, cultural, and political processes are intensely magnified and obviated by a disaster event. The process of collective definition in a community is therefore responsible for the emergence of disaster risk problems, for the way in which they are seen and, for the way in which they are approached and considered, for the kind of remedial plan that is laid out and for the transformation of the remedial [29]. Disasters thus have the potential to generate “framing contests” that result in fierce competition over which interpretations hold sway over the collective imagination [30].

### 3.1. Disaster risk frames

The term “disaster risk” has been framed differently by academics, policy makers, and lay people to characterize the potential of different kinds of dire situations such as accidents, disease outbreaks, ethnic clashes, and devastating natural and anthropogenic phenomena. In disaster literature, disaster risk has been framed using a theistic view as “acts of God”, objectivist view as “acts of nature” and constructivist view as “social vulnerability”. These views are elaborated below.

#### 3.1.1. Theistic view

From time immemorial disasters were perceived to be caused by supernatural forces as Acts of God [31]. This perception of disasters and disaster risk is rooted in theodicy. According to Chester and Duncan [32] theodicy is defined as the process of seeking to reconcile the reality of human suffering with the notion of a loving God. In diagnostic framing, disasters were framed as divine retribution for human misdeeds and failings [33,34]. According to White et al. [33] disasters were not simply visited upon humans in a capricious and random way but were seen as an expression of a vengeful or wrathful God justifiably displeased with human behaviour. Chester et al. [34] citing Dupree and Roder (1974) argue that as far as droughts were concerned, not only was God's responsibility undoubted within the Hebrew Bible (e.g. 2 Chronicles 7: 13–14) but it was still invoked in the 1970s to explain lack of rain in the North-western region of Nigeria by Christians and Muslims alike. Moreover, divine punishment was frequently invoked to explain plagues in Christian Europe during Medieval times [34]. In

Zimbabwe, some people still view disasters as a result of people being so sinful to have incited the wrath of the gods [30]. More examples of religious reactions to disasters can be found from Chester and Duncan [32]. Theistic interpretation of disasters has been criticised for placing the blame for a disaster outside of human control [35]. This view is often associated with fatalistic and submissive attitudes of disasters [36]. Theistic interpretation of disasters has also been used to avoid responsibility for disaster risk. For example, Steinberg [37] argues that those in positions of authority have used the term “acts of God” to distance themselves and their organisations from any complicity and responsibility for disasters and disaster risk. Following the eighteenth-century “enlightenment”, religious explanations became less prominent and were progressively replaced by more scientific explanations of disasters [34]. In natural sciences, religious beliefs are normally not considered as objects of scientific study because they are not based on empirical observation. By scientific criteria, these beliefs were rejected as unreal and belief in them was generally classified as irrational [38]. As such treaties on hazards and disasters have overlooked religion in understanding disaster risk [36].

### 3.1.2. Objectivist view

The practice of disaster risk analysis that emerged from the 1930s up to the 1960s was in large part, objectivist in form [13]. It was mainly shaped by methodological framework derived from the neopositivist/empiricist methods that dominated the sciences of the day [39]. In ontological terms, disaster risk has been viewed as the real, quantifiable product of nature’s impact on society; independent from the social constructions of a society [40]. From this perspective, disaster risk has been generally defined as a probability of loss in relation to the impact of a specific hazard [41]. This view of disaster risk places disaster risk problem on the hazard hence it is generally referred to as the hazard paradigm. This hazard-centred paradigm is embedded in a general discourse of capitalist modernity where nature and society are seen as separated, and nature is considered a commodity that can be appropriated and controlled through expert knowledge and modern administration [42]. As such disaster risk has also been viewed as an act of nature. When disasters are viewed as an act of nature, nature (the source of hazard) is the cause, the condition, and the propelling force that damages, destroys and kills [43]. In prognostic framing, disaster legislations were based on technical solutions such as the construction of levees and flood defence, to help communities cope with disasters [13]. This emphasis on technical solutions has often led the hazard paradigm to be viewed as the technocratic paradigm. However, with the hazard/technocratic paradigm in place, disasters continued to increase in frequency, intensity and impact [1]. According to Manyena et al. [31] the efficacy of the hazard paradigm became questionable, including its relevance in informing disaster legislation.

### 3.1.3. Constructivist view

From a constructivist perspective of disaster risk [40], authors such as Quarantelli [44]; Shefali [41] and Lavell & Maskrey [4] have argued that ‘disaster risk’ is not something that lends itself readily to objective quantification or a single definition, but rather is socially constructed through the interaction of economic, cultural and political processes operating at several different scales. Disaster risk problem has thus been framed as an expression of vulnerability [45]. Vulnerability can be defined as the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards [3]. Vulnerability is thus a conceptual nexus that links the relationship that people have with their environment to social forces and institutions and the cultural values that sustain or contest them [46]. In disaster risk literature, emphasis has been placed on social, political and economic exclusion of the poor and powerless [47] which make some people in a society more or less vulnerable. The gist of vulnerability is thus a by-product of social inequalities. The Pressure and Release (PAR) model proposed by Blaikie

et al. [48] further clarified the vulnerability paradigm and conceptualised a disaster as an intersection of two opposing forces: those generating vulnerability on the one side and the physical exposure to hazard on the other. Vulnerability is influenced by a variety of factors such as gender, class, race, culture, nationality, age, and other power relationships. The solution to disaster risk would be the transformation of social and political structures that breed poverty and the social dynamics that serve to perpetuate it as is suggested by the Release side of the PAR model.

## 4. Methodology

For purposes of analysis, this study is approached from an interpretivist perspective in an effort to answer the research questions elicited above. This perspective provides the opportunity to understand the way people interpret and make sense of their experiences in the world in which they live and how the context of events and situations and the placement of these within wider social environments have impacted on constructed understandings [49]. This study therefore used a literature review and qualitative semi-structured interviews in order to explore how various perceptions of disaster risk may influence disaster risk problem framing in Zimbabwe.

### 4.1. Literature review

To answer the research questions, a literature review was carried out to analyse the vocabulary used to describe disaster risk in books, policy documents and research documents. Most of the literature was found through electronic databases. Libraries in Zimbabwe and search engines like Google Scholar were also utilised. Different search combinations were used to find relevant literature. *Framing* was combined with words like *disaster risk*, *perception*, *crisis*, as well as with *communication*. With the purpose of finding possible discussions on definitions, *framing* was also combined with *definition*, *meaning*, and so forth. A critical evaluation of the credibility of the literature was done mainly by cross-examining different authors’ logic of argumentation and conclusions.

### 4.2. Interviews

Seeking definitions of disaster risk can be a complex task that brings out the pedantic in scholars and may create considerable frustration because the term has varied meanings [50]. Taking heed of Kroll-Smith and Gunter [51] that scholars should look for the definition of disaster risk among those who experience it, this study used semi-structured interviews with disaster risk management practitioners and the local people in Zimbabwe to investigate how disaster risk problems are framed. In order to operationalise the research questions, the interviews were designed to collect information according to three specific aspects: (a) understanding how disaster risk is defined; (b) understanding disaster risk problems, (c) understanding what influences people to have a particular disaster risk problem frame.

In selecting practitioners, senior managers and specialists in disaster risk management were purposively selected from government departments, non-governmental organisations (NGOs) and universities. These practitioners were selected from about forty organisations that participate in the national civil protection committee. In total, ten interviews were conducted, and these included four officers from four government departments, three programme managers from three NGOs, and three academic staff from two universities. The selection of interviewees for this study depended on the availability of disaster risk practitioners at a specific time and place. Furthermore, the selection of responders also depended on their involvement in disaster risk management at various levels of government. It was essential that all the respondents adequately understand disaster risk policy and its facets. The selection of practitioners from government departments and non-governmental

organisations was, however, limited to Harare because most of practitioners with experience in policy decision making in disaster risk and civil emergencies are concentrated/located in Harare.

To compare how disaster risk is framed between practitioners and non practitioners local people who had experienced disasters were selected using the snowball technique from districts. The snowball sampling method was used during the development of the interviews, by asking village heads for the names of elderly people who had experienced more than one disaster from those that have been recorded in Zimbabwe (see Background Section) and were likely to be knowledgeable about disaster risk. For one to qualify for the interview, he/she had to answer “Yes” to an initial question: “Have you experienced any disaster since 1980?” and give a satisfactory answer to the question “What is a disaster?” If one failed to answer these questions, the person was asked to name a person whom he/she thought could answer the questions. The choice of the local people enabled the study to understand the mind-sets of the ‘common’ person on disaster risk. Obtaining disaster risk information from people with long term experience in the area of disaster risk helped in counter-checking the credibility of data from other sources. In total, eleven interviews were conducted with local people from five districts (Harare Rural, Chirumanzu, Tsholotsho, Masvingo Rural and Gwanda) that were purposively selected from a total of fifty nine districts in Zimbabwe. These districts were chosen because they have been hit hard by disasters since 1980 [9,30].

#### 4.3. Data analysis

Data from both interviews and document reviews were analysed using content and contextual analysis techniques. Content analysis focuses on the content of communication, such as interviews and speeches on the conflict potentials of disaster risk problem framing [52]. Content analysis allows for determining and analysing what, how and why people talk about disaster risk problems. Contextual analysis was used to analyse collected data on the basis of the contexts. For document analysis, whole documents were imported to NVivo 11 computer software and after reading the document, the main ideas were summarised. For the interviews, records were fully transcribed to Microsoft Word documents and were imported into NVivo. This allowed the development of an initial code skeleton which included the main categories based on the main themes discussed in the interviews. These themes were: (a) Understanding disaster risk; (b) Understanding disaster risk policy problem; and (c) Understanding what influences people to have particular frames of disaster risk problem. The initial coding was followed by topic coding, where different topics discussed in the different passages of the interviews, were placed on the first hierarchy nodes of the tree node. Analytical coding [53] was then performed to generate new categories that formed the second hierarchy nodes. Using the Word Frequency query, word clusters were formed, and the thematic codes were derived from recurring phrases and word clusters.

### 5. Results and discussion

In this study, the results of the interviews show that disaster risk is perceived differently by different people. During the analysis of the interview data, two levels at which framing can occur (i.e. prognostic and diagnostic) were used to compare how interviewees frame disaster risk problems. Two groups of disaster risk practitioners were identified through systematically studying the transcripts; one was technocratic in its approach (mostly government) while the other was constructivist (mostly NGOs) in nature. From these two groups and the local people, three frames (technocratic, vulnerability and theistic) in which a disaster risk problem is framed were identified using analytical coding. This section presents these three frames that emerged from the study and the presentation is followed by an exposition of supporting data and information.

#### 5.1. Hazard/Technocratic frame

Framing involves selectivity where representation of a certain claim is dependent on a process of omission, that is, the denial or silencing of rival claims [54]. In this research the hazard/technocratic frame emerged as the dominant frame among practitioners and rival claims such as vulnerability or theistic frames were silenced. In diagnostic framing, the majority (70%) of the practitioners viewed the hazard as the problem to be managed. To them, the root cause of destruction and disruption in communities was caused by the extremes of nature rather than by humans. In line with Fordham et al. [43], the hazard was regarded as the cause, the condition, and the propelling force that damages, destroys and kills. These hazards were located in the biological, geological or meteorological conditions or processes in the natural environment and terms such as “natural hazard” and “natural disaster” were common among the interviewees. Disaster risk was thus defined as the potential loss from an extreme event that arises when a natural hazard such as drought, flood, earthquake and landslide negatively affect people. The following quotes from two participants from government departments illustrate this thinking:

‘...when we talk about disaster risk we are talking about the probability of a natural hazard occurring, its impact on people and how the hazard should be managed in order to reduce its devastating consequences to communities...’

‘...I view it [disaster risk] as a function of natural hazards, which can become threats to society and its values...hazards cause destruction and disruption to communities....they must be managed to avoid their devastating consequences.’

Whilst it is important to understand the hazard component in disaster risk, this traditional view of disaster risk as an extreme natural event caused by a natural hazard is limiting. It only focuses on the natural hazards as the cause of disasters yet technology has emerged as one of the major sources of hazards for modern society [55]. Moreover, the definition of a hazard has been broadened to that of “environmental” hazards underpinned by a range of social, economic and political factors. The hazard/technocratic frame of disaster risk has thus been criticised for being partial [56]. Authors such as Lavell and Maskrey [4] have argued that disaster risk is not only primarily the outcome of geophysical processes, but can be seen as created in social, economic and political systems, including failed development. Consequently, when disaster policies are formulated without paying attention to the social context of disasters, the exposure of vulnerable people to disaster risk is hidden and minimising vulnerabilities and increasing resilience are ignored [40].

In investigating what shaped the perception of disaster risk as an act of nature, legislation was found to be critical in shaping the perceptions of practitioners on disaster risk. The Civil Protection Act which guides the practice of disaster risk management in Zimbabwe is objectivist in nature. Disaster risk problem is thus placed on the hazard. The Civil Protection Act 2001 (Part I, Section 2) [15] defines a disaster as consisting of, “any (a) natural disaster, major accident or other event howsoever caused; or (b) destruction, pollution or scarcity of essential supplies; or (c) disruption of essential services; or (d) influx of refugees; or (e) plague or epidemic or disease; that threatens the life or well-being of the community”. Part (a) and (e) of the definition cited above specifically refers to hazards while part (b); (c) and (d) are the effects of the hazards. For practitioners that use mandated definitions (especially government departments), disaster risk was in effect what the legislation specified it to be. One practitioner from a government department had this to say:

‘...we have a legislative mandate and statutory responsibilities to meet ...you cannot wake up one morning and say today I am changing the Act because I have new interesting ideas about disasters ....we are guided by the Act ...you can't view disaster risk

otherwise.'

Organisations that participate in disaster risk management in Zimbabwe are guided by the Civil Protection Act of 2001 on how they should interpret and deal with risk. In interpreting disaster risk, these organisations create what De Boer et al. [23] labelled as "organizing principles" that enable a particular interpretation of a phenomenon. Organisations therefore set operational definitions that allow them to participate in events and processes that meet their own criteria [28]. For example, in this research, fire brigade personnel saw disaster risk in the context of fires, health practitioners saw disaster risk from diseases perspective while NGOs dealing with food security viewed disaster risk from a climate change and drought perspectives. Over time, organisations develop a set of beliefs, codes, myths, stereotypes, values, norms, and so forth that are shared in the collective memory of a group [57]. These beliefs and expectations produce norms that powerfully shape the behaviour and perceptions of an individual and groups in the organisation [58]. Culture is therefore critical in framing as it influences the selection of concepts, focusing upon them, their salience and relevance, and the affect attached to them [59]. According to Goffman [57] individuals are not able to change these persistent cultural phenomena and as such, the repertoire of frames is, conceptually situated largely externally of the individual. Thus, the vagaries of what an organisation intends to do about risk are crucial factors in framing disaster risk problems. However, framing disaster risk problems using the vagaries of what an organisation intends to do about risk can be criticised in that it leads to reliance on organisational bias of what disaster risk is. Validity of such definitions is likely to be derived from utility and not from something inherent in the phenomenon itself [60]. This finding can help in explaining why sometimes disaster risk discourse is rarely related to the concerns of the at-risk communities.

In prognostic framing, the majority (70%) of the practitioners interviewed for this study placed emphasis on technocratic ways of managing disaster risk, that is, combating, and controlling nature with technology and engineering [61]. These results are not surprising because the diagnostic framing of disaster risk as a physical phenomenon fosters technocracy and technocratic approaches to disaster risk reduction [4]. Disaster risk solutions are thus influenced by advances in science and technology which make disaster risk management the responsibility of scientific experts. Practitioners interviewed in this research argued that, genuine knowledge on disaster risk is within the bounds of science and is based on formal mathematical logic. They believed that there is an objective reality and that disaster risk knowledge exists as something that can be observed and measured. The following quotes from two interviewees, one from a local university and the other from an NGO illustrate this thinking:

'...the force of destruction comes from the hazard. This is where attention should be placed if we are to minimise disaster risk. What value is social engineering to a volcano, earthquake or tsunami? ...I believe through advanced science and engineering we may find the protection we need from hazards.'

'There are many ways in which drought can be mitigated.....we can develop drought resistant crops, we can improve our irrigation systems ....all these disaster problems will disappear. Our biggest challenge is that there is lack of investment in technology to deal with drought.'

Expressing disaster risk in technocratic form implies that disaster risk management is the province of technical experts charged with analysing, predicting, and providing relief [62]. The general public is thus viewed as illiterate and incapable of defining disaster risk. This thinking inhibits any real possibility of taking advantage of traditional community based knowledge systems which are many times "intuitive experts" in risk management and adaptation and intuitive generators of knowledge [4]. Public participation of people at risk is often neglected [47]. Moreover, another limitations of this frame, noted by a few (29%)

interviewees and argued by some authors ([63,64]), is that quantitative methods can be difficult to apply in reality because of lack of data. One practitioner from a local university argued that disaster events especially earthquakes pose challenges in implementing probabilistic approaches because of their infrequency in Zimbabwe. Such infrequency makes it difficult to obtain adequate data for estimating the probabilities and consequences. Some interviewees blamed disaster risk on lack of advanced technology to deal with various hazards especially flooding, drought and epidemics which are common in Zimbabwe. The need for technical competencies that are not available in every context therefore makes the hazard/technocratic frame more prone to tractability issues.

## 5.2. Social vulnerability frame

While the majority of the practitioners had a hazard centric view of disaster risk, only three practitioners (one from a government department and two from two NGOs) and the majority (82%) of the local people interviewed framed disaster risk using the social vulnerability frame. This frame is premised on the understanding that disaster risk and disaster, while potentiated by an objective, physical condition, are fundamentally a "social construction", the result of social choice, social constraints, and societal action and inaction [63]. The focus of the definitional problem among the interviewees was primarily the vulnerability of human beings to hazards. In line with disaster risk literature [43,47,56], the results of this research revealed that, vulnerability was viewed as the condition determined by social, economic, and political factors as well as the characteristics of a person or a group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of natural hazard. One practitioner from an NGO had this to say:

'Disaster risk can be defined as the interaction of a hazard on one side and vulnerability on the other....please note that the riskiness of disaster is defined by the vulnerability concept - the susceptibility of elements at risk if a hazard occurs... this vulnerability has its roots in the political, economic, social and cultural factors.'

About 64% of the local people also blamed poverty and lack of resilience on political and economic crisis. From 2000 up to 2008, Zimbabwe's Gross Domestic Product declined by over 40% and all major economic sectors shrunk drastically [65]. Formal employment dropped to between 10–20%, inflation rate rose from double digit levels to hyperinflation levels by the end of 2008, and the land redistribution completely changed the land tenure and production systems [66]. While this harsh environment affected the whole country, the vulnerability of the urban poor to the economic meltdown and food insecurity was especially severe given their heavy reliance on food purchases and increases in other urban expenses such as rent, electricity and transport [65]. During this period (2000–2010), the Zimbabwean population could be regarded as highly vulnerable to disaster risk such that any small predisposing factor could result in emergencies of high proportion, culminating into a national disaster that require external assistance. The 2008/9 cholera epidemic which killed about 4276 [1] is one predisposing factor cited by an elderly man in his 60s from Harare rural district where vulnerability was seen as the major cause of the disaster. He remarked, '...it was a terrible time, money had lost its value, the health system had collapsed, supply of water and electricity was erratic...the disease [cholera] caught us with nothing to deal with it.'

Social vulnerability was also linked to the level of wellbeing of individuals or groups in a community. This wellbeing included aspects related to levels of education, social equity, basic infrastructure, availability of information and overall collective organisational systems among other things. One older interviewee from Chirumanzu district had this to say:

'...this year [2016] we have experienced a drought. The majority of

people did not produce enough maize...but some people though few had a bumper harvest of maize...the question is, why are some people starving while others have plenty yet the weather conditions and soil type are almost the same in the community....the economic crisis we are in, has exacerbated the problem because some people do not have money to buy inputs and they cannot access weather report information.'

In this research, 45% of the interviewees viewed land ownership as critical in determining people's vulnerability to disasters. The issue of land ownership was traced back to colonial period where indigenous Zimbabweans lost their ancestral land and sovereignty over it to the White settlers. To the indigenous people being landless meant vulnerability because land was the source of their livelihood and without it people had no means to stay alive. A man in his 50s from Masvingo Rural district had this to say, '...if you do not have land you are doomed.' Land was the central issue during the liberation for Zimbabwe and continues to be the most important domestic issue in the post-Independence period [67].

It was also interesting to find out that while acknowledging the traditional "natural" disasters such as flooding, drought and cyclones about 36% of the interviewees included witchcraft, industrial crisis, farm invasions and large-scale evictions in the rubric of disaster risk which were omitted by practitioners. These phenomena, like natural hazards, create major social disruptions and they are common to most African countries especially Zimbabwe. This observation raises fundamental questions in disaster risk management: Can these emerging phenomena be categorised as disaster risk? When is a phenomenon, considered a "disaster risk" and who determines that a phenomenon is a "disaster risk"? These questions undoubtedly challenge governments and disaster risk practitioners to review and to reframe their understanding of disaster risk because these social happenings are emerging and will need to be included or excluded from the rubric of disaster risk. In a democratic, pluralist society; account has to be taken, *de jure* or *de facto*, of sectoral opinions and values [60]. This is important because local people understand their environmental, ecological, social, economic and political processes of their area.

In prognostic framing, the majority (64%) of the local people saw management of vulnerability as what distinguished whether one would be safer from a disaster impact or not. One elderly man in his 60s from Tsholotsho had this to say: '...if political and economic situations are improved, I am sure we will be better off in dealing with disasters...' Addressing the root causes and reducing pressures that translate the effects of root causes into the vulnerability of unsafe conditions as is depicted in the Pressure and Release (PAR) Model of Blaikie et al. [48] was believed to be critical in disaster risk reduction. Thus dealing with the social, cultural, political and economic factors that limit the ability of communities to mitigate, prepare for, respond to, or recover from disasters was viewed as critical. Disaster risk is therefore regarded as a social process whose origins is to be examined within society-nature relations in the context of development and should not be depicted solely or mainly as a "natural" phenomenon [4]. Disaster risk legislation(s) therefore need to encapsulate community involvement and enable local communities to challenge policies and ideologies, governance, power relations and human rights abuses that are responsible for generating vulnerability [31]. Such policies would encourage the transformation of social and political structures that breed poverty and the social dynamics that serve to perpetuate it. Reframing disaster risk management in this way would shift the stakeholder focus from specialized technocratic agencies to those involved in everyday development processes, at all levels [4]. However the vulnerability perspective in itself fails to understand disaster risk comprehensively as little emphasis is placed on the hazard dimension of disaster risk.

### 5.3. Theistic frame

A consistent feature in disaster risk discourses has been the use of theistic frame [32]. In this study 20% of the practitioners and 45% of the local people interviewed, framed disaster risk using the theistic frame. Such low figures are not surprising among practitioners because of the criticism given to this frame in disaster theory and practice [68] and lack of scientific studies on the topic [36]. In this research, the results for this study show that disaster risk was viewed as acts of Gods from both Christian and African traditional religions. Disaster risk was viewed as either expressing God's anger at human actions, or act instrumentally as warnings for future punishments of sins or transgressions. Thus in diagnostic framing, sin or transgression was regarded as the cause of disasters and disaster risk. In order to get deeper understanding of this frame, it was necessary to probe on how interviewees understood the concept of sin or transgression. Generally, sin or transgression was taken to mean that a person has acted against God's purpose. Some respondents viewed sin as failure to deal with or acting in ways that increase vulnerability of communities to disaster risk. What causes pollution, inflation, unemployment, for instance, was regarded as sin in which communities are punished for by God. A retired teacher in his 70s from Masvingo Rural district had this to say:

'...I am aware of the fact that academic scholarship has been highly critical about a theistic interpretation of disaster risk...but they [academics] have discovered the same finding that sin leads to punishment which can be in the form of disasters. You talk of pollution, inflation, unemployment....and progression of vulnerability... you are explaining sin and how sin weakens humanity. From the floods of Noah to earthquakes, volcanoes, epidemics mentioned in the book of Revelations all are connected to God as punishments to people's sins...'

It is interesting to find out that the theistic view of disaster risk can be seen as closely related to the vulnerability concept in that it is concerned with elements that are crucial in the vulnerability paradigm such as poverty, pollution, inequality and marginalisation [56]. Like the PAR model, sin can be traced back to political and economic systems which breed "sins" such as marginalisation and inequality. Scholars and practitioners are therefore challenged to establish the relationship between vulnerability and sin in disaster causality.

Sin or transgression was also viewed as a result of lack of humanness in a society. Some interviewees from the Shona and Ndebele religious-cultural systems argued that when people in a society lack *unhu/Ubuntu* (humanness) that could provoke the anger of *Mwari/uMlimu* (God) or *Vadzimu/amadlozi* (ancestors) and could result in catastrophic disasters. Lack of *Unhu/Ubuntu* meant immorality, ill treating the environment through deforestation, veldfires and pollution among other things. The concept of *Unhu/Ubuntu* carried with it the idea of living in harmony with one another and with nature. The Western notion of industrialisation was blamed for the lack *Unhu/Ubuntu* because it did not conform to the rules that guide the use of natural resources which was done through spiritual considerations. A woman in her late 60s from Harare Rural District had this to say:

'...sacred places have been desecrated ....people are doing anything in search of money....springs our source of clean water, animals, and certain fruit trees have disappeared from our land.... *Unhu* [humanity] has disappeared; the land is crying....the younger generation has forgotten that there is a chief and *vadzimu* [ancestral spirits] that live in it. When you do not honour ancestral spirits, you invoke bad luck for the community.'

It is important to note that religion can be viewed as critical in safeguarding natural ecosystems such as wetlands and forests. These natural ecosystems help in reducing physical exposure to natural hazards by serving as natural protective barriers or buffers [3]. When ecosystems decline, their capacity to provide buffers against disasters

through ecologically destructive practices such as deforestation and pollution both hazard and vulnerability increase. Disaster risk reduction efforts can therefore benefit from religious considerations in managing ecosystems.

Few interviewees (27%) had a more fatalistic attitude on disaster risk as they viewed it as God's way of order or control of human events. Disaster risk was interpreted as God's plan that could not be understood by human beings. As such human beings could not do anything about disaster risk. One elderly Christian female had this to say.

'...the Bible teaches us that God is good and does good (Ps. 86:5; 119:68). He knows all things. Job made it clear that God was in control: "The Lord gave, and the Lord has taken away" (Job 1:21)...'

In prognostic framing, theistic interpretations of disaster risk have been often associated with fatalistic and submissive attitudes of disasters [36] and humanity has been viewed as powerless victims of disasters. However, such thinking neglects the role of religious groups in disaster risk reduction. The results of this research show that people do not just take a fatalistic attitude; they take "religious" mitigation and response measures. Rituals such as prayers for rain in drought were performed to placate ancestral spirits and God and elicit their support. Repentance and sacrifices were also seen as effective ways of dealing with disasters. Some interviewees argued that *zviera* (taboos) also helped in minimising disaster risk as they prohibited and restricted unsustainable use of certain plant species, forests, mountains and rivers. Through taboos the endangered species, nutritional and medicinal plants as well as water sources were protected. Three interviewees recalled that in the past, rituals brought good fortunes such as rains and good harvests and livelihoods were safeguarded by taboos. As Gaillard and Texier [36] argued, religion can never be detached from the larger picture of risk mitigation, as it always interacts with the social, economic and political constraints in the construction of vulnerability to natural hazards. One can therefore argue that theistic interpretations of disaster risk can provide a set of potential frame devices that might be utilised in disaster risk reduction efforts. It was interesting to note that the notions of *Unhu/Ubuntu* and sin were viewed as critical in determining which policies are supported by the community. The interviewees argued that the community was more likely to provide assistance to particular populations based on views about sin and humanness. When people are seen as sinners there is less public compassion and often stigma.

## 6. Conclusion

The concept of framing highlights that disaster risk has varied meanings and interpretations between practitioners and the local people, which is embedded in their diverse storylines. However, since disaster risk derives from a combination of physical hazards and the vulnerabilities of exposed elements [45,63], framing disaster risk problems using a single perspective (hazard, vulnerability or religion) present a partial view. For example, while the perception of experts in this study was largely guided by natural science, they argued that probabilistic risk analysis is difficult to implement in its pure form because quantitative estimates of hazard and vulnerability are not always available. Pelling [69] remarked that "technological responses that address physical causes alone can prolong, and even increase, the losses incurred when disaster strike". This may be due to the fact that discourses of disaster risk causality tend to ignore the socio-economic processes that place vulnerable populations at risk. This study therefore suggests that there are various ways of thinking about disaster risk problems. As such disaster risk problems should not be viewed as unitary and state-centred, but rather as diverse and multi-dimensional. This realisation is crucial in understanding that the locus of disaster risk problem is not to be found primarily in governmental agencies; rather, it is to be found in the communities where risk is generated and experienced. Furthermore, disaster risk does not exist independent of its

context - it reflects not just actions, but interactions, and the emergent properties of those interactions [70]. It is therefore useful to examine disaster risk using multiple framings because some of the drivers of problem framing are fundamental to a particular group in a society and it can be difficult to step outside dominant institutional or disciplinary ways of thinking [2].

Acknowledging that there are different disaster risk frames within a society leads to the question of how these various frames should be incorporated in disaster risk policy. In answering this question, the authors argue that there is need for a comprehensive disaster risk management frame that incorporates the convolution of hazard, vulnerability and religion. The hazard, vulnerability and theistic paradigms should not be taken as orthogonal frames but as fundamentally interrelated and co-evolving in causing disaster risk. Disaster risk practitioners should therefore aim for a networked model of engagement where various stakeholders in the society are drawn together to form networks that can debate about disaster risk problems and formulate action plans. Public participation is crucial because when affected people do not participate in diagnostic and prognostic framing, they are unlikely to be wholeheartedly in favour of a policy that is aimed at solving what they do not see to be the problem [71]. Such an integrative-driven approach to disaster risk can lead to engagements for greater action towards effective disaster risk reduction and help governments and societies to mitigate and prevent disaster risk. The benefit of an integrative framework is that the different theoretical assumptions and linkages underlying each frame together provide a more comprehensive understanding of disaster risk than any single frame by itself.

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## **CHAPTER 4: TRACTABILITY OF THE OBJECTIVIST FRAME IN POLICY IMPLEMENTATION**

### **Article 3: An exploration of the tractability of the objectivist frame of disaster risk in policy implementation in Zimbabwe**

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## ABSTRACT

Despite the growing evidence pointing towards disaster risk as a social construction, the objectivist frame still dominates the conceptual frameworks constructed around disaster risk in Zimbabwe. As disasters continue to occur with increasing regularity and ferocity, the usefulness of the objectivist frame of disaster risk in minimising the devastating effects of disasters is questionable. This article investigates how framing affects the tractability of the objectivist frame of disaster risk in Zimbabwe by using the Tokwe-Mukosi flood disaster of 2014 as a case study. The research utilised secondary data and semi-structured interviews with senior managers and specialists in disaster risk management in Zimbabwe to explore factors affecting the tractability of the objectivist frame in implementation. The results of the study suggest that tractability of the objectivist frame is mainly affected by its limited understanding of the causes of, and solutions to, disasters. The frame ignores rival frames crucial in disaster causality, such as the constructivist frame, and in ‘ignorance’ it harbours ‘latent’ failures which only become apparent on the occurrence of a particular major disaster. Moreover, the objectivist frame of disaster risk requires significant administrative and technical expertise and funding to be tackled effectively, which are not readily available especially in developing countries. The frame is also reactive in dealing with disasters, which makes it prone to ‘policy surprises’, leading to ‘policy disasters’ where disasters are viewed as direct consequences of policy choices. The article concludes that for Zimbabwe to achieve its goal of minimising the impacts of disasters, greater efforts must be made in reframing disaster risk by integrating the objectivist frame with the social constructivist frame.

**Key words:** objectivist frame; disaster risk; tractability; policy; implementation

## 1. Introduction

Despite the growing evidence pointing towards disaster risk as a social construction, the objectivist frame of disaster risk still dominates the conceptual frameworks and imageries constructed around disaster risk in Zimbabwe (Chipangura, Van Niekerk & Van Der Waldt 2017; Lavell & Maskrey 2013). This view of disaster has inspired interpretations of what disaster risk means and controls how certain phrases are used, prioritises the questions that

are asked and answered, and influences the solutions that are prescribed (Leichenko & O'Brien 2008) for disaster risk. Consequently, the emphasis on managing 'natural' disasters has become conventional wisdom and is locked into policies, governance arrangements and instrumental systems (Lavell & Maskrey 2013) such as the *Civil Protection Act* in Zimbabwe (Chipangura et al. 2017). However, with policies that are informed by the objectivist frame, both anthropogenic and natural hazards continue to occur with increasing regularity and ferocity, killing hundreds of people and destroying millions of dollars of habitat and property in Zimbabwe (EM-DAT 2016). This implies that such policies do not often lead to concrete measures that reduce disaster risk and the devastating impacts of disasters. In this respect, they seem to resemble 'empty shells' (Hoque & Noon 2004) characterised by 'implementation deficit' (Knoepfel et al. 2011). As a result, policy failures have tended to produce calls for more regulation, with little assessment of the underlying reasons for failure (Lavell & Maskrey 2013; OECD 2000).

Studies of disaster risk governance suggest that the way disaster risk is framed underlies many policy implementation failures (Handmer & Dovers 2013; Merry 2013; Renn 2008). This is because framing is responsible for the emergence of problems, for the way in which they are seen, for the way in which they are approached and considered, for the kind of remedial plan that is laid out and for the transformation of the remedial (Handmer & Dovers 2013; Grafton & Permaloff 2005). Framing therefore determines the regulatory path and how successfully the chosen management strategy is implemented (Merry 2013). However, research on framing has largely focused on the level of policymaking, analysing how policy entrepreneurs and policymakers define problems and embed them in public policy (Coburn 2006). In disaster risk literature, little, if any, attention has been given to what the objectivist frame means for disaster risk policy designs, and with what, consequences for their implementation. This article therefore seeks to contribute in filling this gap by investigating how framing affects the tractability of the objectivist frame of disaster risk, which dominates disaster risk practice in Zimbabwe in minimising the devastating impacts of disasters. The article illustrates the practical consequences that the objectivist frame has for disaster risk reduction policy and responses by drawing on Tokwe-Mukosi flood disaster that occurred in Zimbabwe in 2014.

## 1.1 Framing

Disaster risk has been understood differently by different scholars and practitioners depending on a range of factors, such as philosophical orientation, values, beliefs and the institutional context in which disaster risk reduction is planned or implemented. It has been viewed as acts of God, act of nature and as socially constructed events (Chipangura, Van Niekerk & Van Der Waldt 2016; Quarantelli 2005). The process by which issues, decisions or events acquire different meanings from different perspectives has been studied as ‘framing’ in a variety of social science disciplines (Entman 1993; Snow 2004). To frame is to select some aspects of perceived reality and make them more salient in the communicating text, in such a way that it can promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described (Hallahan 1999). Authors such as Handmer and Dovers (2013) and Grafton and Permaloff (2005) argue that framing influences how a problem is defined and constructed as well as how the governance arrangements, incentives and instrumental systems developed to address the problem are designed. Framing has been shown to affect people’s decision preferences, particularly under conditions of uncertainty (Tversky & Kahneman 1981). Problems that are formulated in different ways trigger different preferences. For example, Dewulf (2013:322) argues that, when people are asked whether they would favour a particular case of dike enlargement, one can expect a much higher percentage of positive answers if the question was prefaced with ‘given the importance of long-term flood safety’, compared to the preface ‘given the importance of the rights of the current property owners that would have to move’. Framing can be categorised into diagnostic or prognostic (Snow & Benford 1988). Diagnostic framing generally refers to the identification of a problem and who to blame (Snow 2004). According to Cress and Snow (2000), diagnostic framing is important because particular problem definitions are advocated while others are undermined. Prognostic framing is about the identification of a solution to the problem identified in the diagnostic framing (Snow 2004). In articulating a proposed solution, prognostic framing sets forth particular goals and suggests tactics for achieving those goals (Snow & Benford 1988). Prognostic and diagnostic framings may be challenged as others offer counter-frames that put forth alternative portrayals of the situation, often with contrasting implications for roles, responsibility and resources (Fligstein 2001). In understanding how framing affects policy implementation, this article

focuses on the objectivist frame of disaster risk, which has dominated the ontological and epistemological viewpoints in disaster risk research and practice.

## **1.2 The objectivist frame of disaster risk**

Objectivism is based on the belief that there is an objective reality and that knowledge exists as something that can be observed and measured (Chipangura et al. 2016). The social world can thus be known epistemologically through the use of objective instruments of measurement operated by a rational and neutral researcher (Eriksson & Kovalainen 2008). From an objectivist view, disaster risk is understood as a physical phenomenon that can be objectively assessed (Chipangura et al. 2016). According to Cardona (2003), this view has been largely shaped by geophysicists, seismologists, meteorologists, geologists and epidemiologists, among others, who believe that disaster risk is a topic exclusively associated with the physical phenomena that generate natural hazard or disaster events and can be objectively assessed. Disaster risk can therefore be understood as a probability of loss in relation to the impact of a specific hazard (Shefali 2009). As Chipangura et al. (2017) argue, this view of disaster risk is hazard centric in that it places disaster risk problem on the hazard; hence, it is generally referred to as the hazard paradigm. This conjecture that disasters only result from natural forces is tantamount to saying that they lie solely outside human history, beyond human influence, beyond moral reason and beyond control (Steinberg 2006).

The hazard paradigm aims to reduce disasters through control of natural environment (Lowe et al. 2007). This is premised on the assumption that, it is possible to manage the planet if there is sufficient knowledge of all the interactions in such large physical systems as the atmosphere, hydrosphere, lithosphere, atmosphere, and biosphere (Wisner et al. 2004). According to Lowe et al. (2007), the hazard approach seeks to manage risk through public policy application of geophysical and engineering knowledge, for example, monitoring and modelling extreme geophysical events, and creating disaster and emergency plans. However, this view has been criticised in that not all disaster risk problems can be solved using the application of geophysical and engineering knowledge. According to Pelling (2003), technological responses that deal with physical causes alone can prolong, and even increase, the losses incurred when disasters occur. Moreover,

discourse of disaster causality tends to overlook the socio-economic processes that place the vulnerable populations at risk, and as a result, such processes are not considered as policy issues. Humanity is viewed as powerless victims of ‘natural’ disasters (Jones & Murphy 2009), and thus free from the responsibility of avoiding disasters. Disaster risk policies that emanated from the objectivist frame have however been difficult to implement because they have been geared towards addressing the hazard component only, yet disaster risk is a product of the possible damage caused by a hazard because of the vulnerability within a community (Van Niekerk 2012).

### **1.3 Factors affecting policy implementation**

Public policy may be viewed as a purposive course of action taken by governments in dealing with some problem. According to Handmer and Dovers (2013), policies are positions taken and communicated by governments in more or less detail ‘avowals of intent’ that recognise a problem and state what will be done about it. These definitions show that public policies do not just happen haphazardly. Instead, public policy involves the production of deliberated decisions or (non)actions that involve public actors and the intention to solve what is perceived as one or several collective problems (Knoepfel et al. 2011). The movement from policy on paper to action on the ground has been studied by scholars as policy implementation, which aimed to explain causal relationships between policies as enacted and policies as implemented (Koontz & Newig 2014). Policy implementation, as Brynard (2007) argues, is concerned with the following questions: were the intentions of the policy translated into tangible outputs? Did the outcomes of the policy match its goals? What is being implemented? How is policymaking differentiated from policy implementation? Policy implementation thus identifies the problem(s) to be addressed, stipulates the objective(s) to be pursued and, in a variety of ways, ‘structures’ the implementation process. In trying to understand the factors that affect implementation, Sabatier and Mazmanian (1980) present three categories of factors thought to affect the implementation of public policy in their framework. This study utilises two categories: (1) tractability of the problem and (2) the ability of the statute to structure implementation, which are explained below.

### *1.3.1. Tractability of the problem*

It concerns the political, societal and technical capacity of managing and taming a collective problem through proposed policy solutions (Hisschemöller & Hoppe 1995). According to Dovers (1995), tractability describes the ease, or conversely the difficulty, with which a problem can be redressed. Sabatier and Mazmanian (1980) argue that problems are most tractable if:

- (1) there is a valid theory connecting behavioural change to problem amelioration; the requisite technology exists; and, measurement of change in the seriousness of the problem is inexpensive; (2) there is minimal variation in the behavioural practices which cause the problem; (3) the target group constitutes an easily identifiable minority of the population within a political jurisdiction; and (4) the amount of behavioural change is modest. (p. 542)

### *1.3.2. The ability of the statute to structure implementation*

According to Sabatier and Mazmanian (1980), the ability of the statute to structure implementation is built around the view that policymakers can substantially affect the attainment of legal objectives by utilising the levers of power at their disposal to coherently structure the implementation process. They argue that legislation that seeks to significantly change target group behaviour in order to achieve its objectives is most likely to succeed if:

- (1) it incorporates a valid causal theory linking behavioural change to desired impacts; (2) its objectives are precise and clearly ranked; (3) it provides adequate funds to the implementing agencies; (4) the number of veto points in the implementation process is minimized and sanctions/inducements are provided to overcome resistance; (5) the decision rules of the implementing agencies are biased toward the achievement of statutory objectives; (6) implementation is assigned to agencies which support the legislation's objectives and will give the program high priority; and (7) the provisions for outsider participation are similarly biased through liberalized rules of standing and by centralizing oversight in the hands of statutory supporters (p.542).

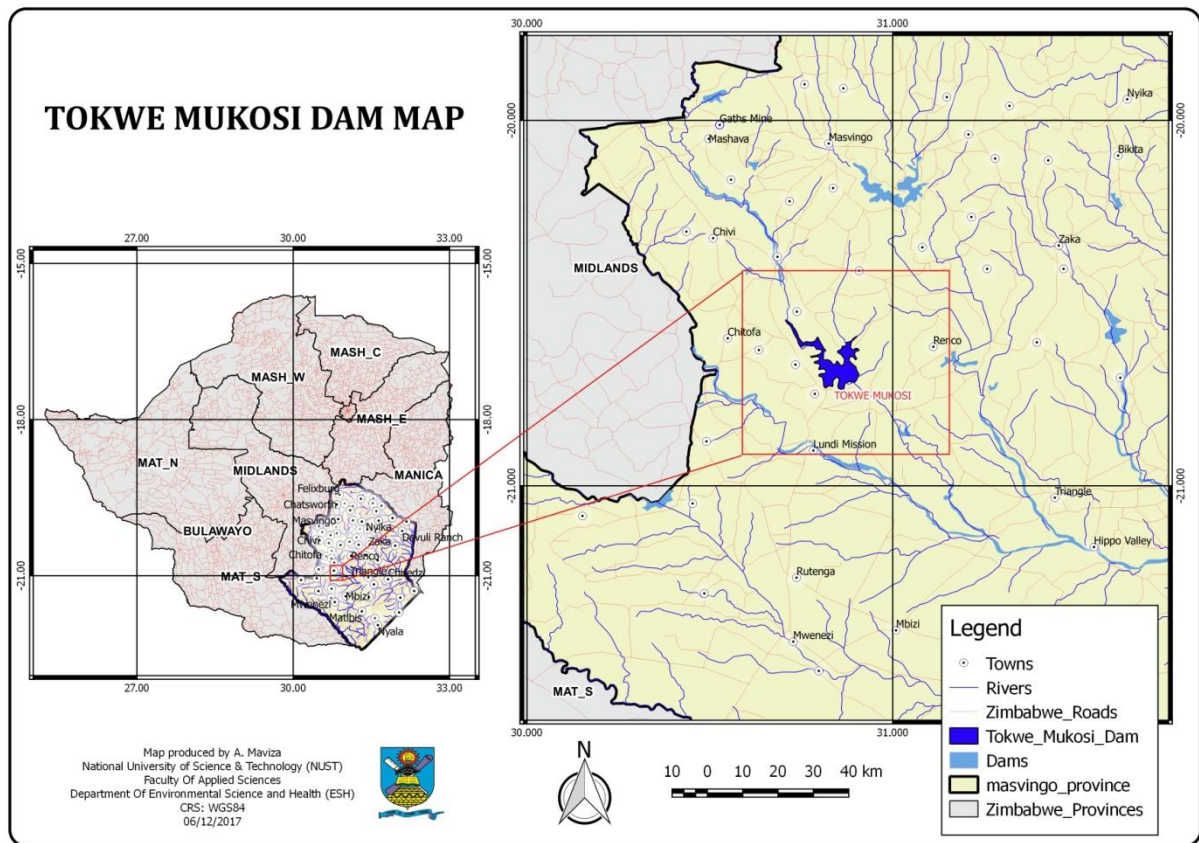
## **2. Methodology**

For purposes of analysis, this study is approached from an interpretivist perspective. This perspective provides an opportunity to understand the way people interpret and make sense of their experiences in the world in which they live and how the context of events and situations and the placement of these within wider social environments have impacted the constructed understandings and realities (Crotty 1998). This study therefore used discourse and document analysis together with qualitative semi-structured interviews in order to investigate how framing affects the tractability of the objectivist frame of disaster risk, which dominates disaster risk practice in Zimbabwe, using Tokwe-Mukosi flood disaster as a case study.

### **2.1 Case selection**

Tokwe-Mukosi dam is situated in the semi-arid area of Southern Masvingo region (Figure 1). The Tokwe-Mukosi flood disaster that occurred in early February 2014 was selected because it is one of the worst flood disasters that had occurred in Zimbabwe. According to the Department of Civil Protection (2014), about 2500 households upstream of the Tokwe-Mukosi dam were displaced to Chingwizi, Chisase and Masangula relocation sites of Nuanetsi ranch in Mwenezi district. The Department of Civil Protection further noted that the majority of these households were mainly low-income families. The incomplete dam partially collapsed and induced flooding to about 40 000 people downstream. It was believed that the dam would fill up by December 2015 when all the communities living within the dam basin would have been relocated to designated sites (Department of Civil Protection 2014). The 6393 households (approximately 32 000 people) and 18 764 cattle were supposed to be relocated in three phases. Phase 1 intended to relocate about 1247 households in very low-lying areas of the dam basin. These households were supposed to be relocated by October 2013. Phase 2 intended to relocate a further 1878 households by October 2014. Finally, the last phase would relocate 3268 families in hinterland areas by October 2015 before the dam was filled up. However, flooding occurred when the dam was incomplete and only 600 households had been relocated (Department of Civil Protection 2014). The remaining 5793 households were caught by surprise in the unsafe basin. The government made an appeal to both local and international humanitarian

communities to aid urgent humanitarian needs for affected communities in the Tokwe-Mukosi Dam Basin (Department of Civil Protection 2014).



**FIGURE 1:** Location of Tokwe-Mukosi dam.

Source: Authors' own work.

## **2.2 Data collection and analysis**

This study utilised secondary data and semi-structured interviews. For secondary data collection, most of the documents were collected through electronic databases. Libraries in Zimbabwe and search engines like Google Scholar were also utilised. Different search combinations were used to find relevant documents. 'Policy' was combined with words like 'implementation', 'framing', 'tractability' and 'disaster risk'. A critical evaluation of the credibility of the documents was done mainly by cross-examining different authors' logic of argumentation and conclusions. Documentary analysis and discourse analysis (DA) were used to analyse the vocabulary used to describe disaster risk in books, policy documents and research documents. The empirical part of the research used semi-structured interviews to explore the tractability of policy frames in Zimbabwe. The interviews were designed to collect information on the factors affecting tractability of the objectivist frame of disaster risk in policy implementation. In selecting participants, senior managers and specialists in disaster risk management in Zimbabwe were purposively selected from government departments, non-governmental organisations (NGOs) and universities. These participants were selected from about 40 organisations that participate in the national civil protection committee. In total, 15 semi-structured interviews were conducted, which included five officers from four government departments, five programme managers from four NGOs and five academic staff from three universities.

Discourse analysis was used to investigate the participants' construction of disaster risk problems and policy responses. Discourse analysis is useful in examining multiple and conflicting concepts, ideas and narratives that society holds about an issue (Hajer1995). DA recognises that practitioners, as actors involved in policy implementation processes, give different meanings to ideas and concepts (Fischer 2003). This is in line with this research, as the terms 'disaster' and 'disaster risk' have provoked contested debate on what they mean(Perry 2007;Quarantelli2005). For interview data analysis, interview records were transcribed to Microsoft Word documents and were imported into NVivo. This allowed the development of an initial code skeleton, which included the main themes discussed in the interviews. These themes were the following: (1) disaster causality, (2) policy objectives, (3) policy responses and (4) understanding what limits tractability.

Analytical coding (Richards 2009) was then performed to generate new categories that formed the sub-themes, which were ordered into NVivo nodes.

### **3. Results and discussion**

This section discusses the results from the interviews. The discussion focuses on disaster causality in order to understand policy objectives and the type of policy responses. Attention is given to the factors that affect tractability of the objectivist frame of disaster risk in policy implementation.

#### **3.1 Disaster causality (objectivist frame)**

To the majority (80%) of the participants interviewed, the main causal agent responsible for the Tokwe-Mukosi flood disaster was pinned on heavy rainfall. Thus, the disaster was seen as an ‘act of nature’. This construction of the problem is also reflected in the Tokwe-Mukosi Flood Disaster Lessons Learned Workshop opening speech of the Minister of Local Government Public Works and National Housing: ‘...the flood disaster was due to high precipitation that resulted in the unanticipated rapid filling up of the Tokwe-Mukosi dam that was still under construction’(Department of Civil Protection 2014:16). Such framing of the problem exemplifies the objectivist view of disasters where causality is placed on the hazard. In line with Lavell and Maskrey (2013), disasters are still viewed as exogenous, unexpected, extreme events that randomly affect otherwise ‘normally’ developing societies. This construction is perhaps not surprising because the *Civil Protection Act* 2001 (Part I, Section 2), which governs disaster management in Zimbabwe, places more emphasis on the hazard (Chipangura et al. 2017). The *Civil Protection Act*’s way of framing disaster risk influences participants’ sense-making about disasters, providing them with an interpretive frame through which they construct their understanding of disasters (Coburn 2006). Thus, the Act’s framing of the problem as an ‘act of nature’ carries more weight in the problem-framing process than frames put forth in counter-framing such as the vulnerability frame.

However, the validity of this causal theory has been criticised by authors such as Van Niekerk (2012) and Pelling (2003) who state that disaster and disaster risk cannot be

defined by the hazard component alone. Instead, disaster and disaster risk derive from a combination of hazards and the vulnerabilities of exposed elements. As Cardona (2003) argues, one cannot be vulnerable if one is not threatened, and one cannot be threatened if one is not exposed and vulnerable. Thus, framing disaster risk problems using the objectivist perspective alone presents a partial view that will lead to partial solutions to disaster risk management (Chipangura et al. 2017). Participants who were more inclined to the constructivist perspective of disaster risk found this shortcoming of the hazard paradigm as a contributing factor to the Tokwe-Mukosi flood disaster. An interviewee from a local NGO had this to say: ‘...the problem is that the hazard approach being used to manage disasters does not address vulnerability issues which are critical in causing disasters...’ The key point to recognise here is that the objectivist perspective by ignoring the social construction view of disasters can mask the true roots of disaster risk problem and disaster risk creation activities. Thus, without appropriate theoretical basis and theoretical validity a policy will give wrong directions in all ways (Khan 2016; Sabatier&Mazmanian1980). This is because policy objectives as presented below are coined to deal with what is perceived to be the problem.

### **3.2 Policy objectives**

As Handmer and Dovers (2013) argue, the way in which a problem is defined and framed circumscribes the search for solution to that problem. By defining the problem as an ‘act of nature’, about 73% of the interviewees argued that public policy should be designed to prepare people and organise reactions to the disastrous effects of hazards such as floods. In this way, 67% of the interviewees stated that the government and NGOs would be able to intervene before, during and after the impact of a hazard. Disaster risk policy objectives are therefore centred on improving disaster preparedness and response. This is supported by a male interviewee who participates in the National Civil Protection Coordination Committee (NCPCC), who stated that ‘...policy must improve disaster preparedness and response...’ Furthermore, this objective is reflected in the Service Charter of the Department of Civil Protection, which puts emphasis on emergency preparedness. The interviews also revealed that these objectives are influenced by the assumption that ‘nature’ is to blame for disasters and reaction to disasters is regarded a battle between ‘nature’ and human beings. Because nature is difficult to predict, human beings must

therefore be prepared to respond to disasters. Terms such as ‘civil defence’ and ‘civil protection’ have thus been used in support of this notion in Zimbabwe disaster risk management system. However, this objective fosters a reactionary approach to disaster risk management (Lowe et al. 2007). This means that even if risks are known, authorities tend to wait in anticipation of a disastrous event and then activate plans and procedures. This reactive system is prone to ‘policy surprise’. Policy surprise can be conceived of as lack of preparedness based on erroneous assumptions of whether, when, where and how severely a community might be impacted by a hazard event (Parker et al. 2009). For example, an event can be contrary to the policymakers’ expectations – that is, the initial strategic plan for the Tokwe-Mukosi dam was based on recurrent droughts and engineers believed that the dam would start filling up at a later stage when the communities at risk would have been trans-located (Department of Civil Protection 2014). This assumption was challenged when the southern part of Masvingo region where Tokwe-Mukosi dam is located got more rains than previously expected.

### **3.3 Policy responses**

From the interviews, the policy objective discussed above ‘to improve disaster preparedness and response’ was thought to be achieved through four policy responses: (1) coordination, (2) hazard analysis, (3) improvement of early warning systems and (4) evacuation. These proposed policy responses are in line with Hewitt (1983), who argues that the objectivist frame seeks to manage risk in three ways: (1) anticipate and hence contain the extremes of nature through environmental engineering works, (2) monitor and model extreme geophysical events and (3) create disaster plans and emergency responses. This suggests that as with policy formation, the way in which disaster risk problem is framed plays an important role in how policy implementation unfolds. The four policy responses from the interviewees highlighted above are elaborated below.

#### **3.3.1 Coordination**

As disaster risk management involves a number of activities and organisations, about 80% of the interviewees stated that coordination within and between disaster risk management organisations is essential in order to avoid friction and lack of cooperation. In agreement

with OCHA (2012), the interviewees revealed that coordination reduces duplication and competition, allowing for complementarity and for scarce resources to be used more effectively to reach more people and fill specific gaps in response to needs. In the Tokwe-Mukosi flood disaster, lack of coordination was seen as an obstacle that needed to be overcome in order to sincerely improve disaster preparedness and response. Three interviewees (two from government departments and one from an NGO) who participate in the NCPCC stated that once coordination is achieved, ‘civil protection’ would take place and would make disaster preparedness and response more effective and efficient. In Zimbabwe, at national level, the execution of the coordination mandate is realised through the NCPCC. Provincial Civil Protection Coordination committees and District Civil Protection Coordination committees are also mandated to coordinate any emergency-related activities in their respective provinces and districts. This ‘top-down view’ normally associated with the objectivist perspective of disaster risk has long been dominant in the study of coordination (Bardach 2001).

However, in the Tokwe-Mukosi flood disaster, effective coordination was difficult to achieve because of the problems associated with the top-down approach to coordination. The results of the interviews revealed that the top-down perspective of coordination by formal organisations fails to adapt to changed conditions in good time. A participant from an NGO interviewed for this research said that: ‘...in rapid onset disasters like this one [Tokwe-Mukosi flood disaster], formal structures and planned responses are too slow, inadequate, and incoherent...’ When one looks at the definition of ‘disaster’, it is not difficult to understand the gist of this argument. Disasters depict a situation in which normal institutions are disrupted because of capacity deficit. This disruption creates an initial confusion as to how to realign plans to the current situation. Thus, modifications necessary for coping with changed conditions are likely to be constrained by the rigidity of the system. The alternative view as suggested by a lecturer from a local university interviewed for this research would be ‘bottom-up’ coordination. He argued that, disasters bring unexpected uncertainty and people on the ground seem to understand the situation better. ‘Bottom-up’ coordination can thus be conceived of as an outcome of local people working together to solve complex disaster risk problems without guidance from the top (Beck & Plowman 2014). Authors such as Faraj and Xiao (2006) and Chisholm (1989) argue that groups in crisis situations work together quite effectively without being guided

from the top. The 'bottom-up' coordination seems to support the idea of community participation in disaster risk management. An interviewee from a government department who participates in the NCPCC had this to say: '...participation in coordination, it is hoped, increases the success of policy and management, because it is inclusive...' However, this raises a fundamental question: how does bottom-up coordination emerge, and how is it managed?

Sixty-seven per cent of interviewees in this research stated that coordination was difficult to achieve because of the diverse composition of people and agencies working together, all of whom possess different skills, knowledge and competencies. The results from the interviews also indicate that emergency agencies sometimes lack a sufficient understanding of the responsibilities, needs, plans and tactics of their own and other participating agencies, which can have a negative impact on coordination. An interviewee from an NGO had this to say: '... I do not think responders share a common view on how to respond to disasters like the Tokwe-Mukosi...' A lecturer from a local university stated that this problem emanates from the lack of an emergency operations plan. According to Coppola (2007), an emergency operations plan clearly describes the people and agencies involved in response to hazards, responsibilities and actions of these individuals and agencies, and when and where these responsibilities and actions will be called upon. The emergency operation plan should be cascaded to all government departments so that all work is organised towards the same goal. Without an emergency operations document, one can argue that it is difficult to deliver a well-coordinated disaster response. Another interviewee from a humanitarian organisation stated that lack of emergency exercises contributed to difficulties in coordination. He had this to say: '...pre-disaster preparedness is generally weak because organisations that deal with disasters are not doing enough emergency exercises...' According to Schwab, Brower and Hoboken (2007), adequate preparedness depends on solid training and exercises that mimic real-life emergency scenarios in controlled setting. This gives practical capabilities and allows individuals to practice their roles and responsibilities before the actual event occurs. Exercises also introduce various individuals and agencies together. As Coppola (2007) argues, disaster management officials will know other disaster responders, understand their roles and responsibility, and find ways of how they can assist and be assisted by others. Thus, as

Sabatier and Mazmanian (1980) argue, one of the most important attributes of any statute is the extent to which it hierarchically integrates the implementing agencies.

### **3.3.2 Hazard analysis**

Sixty per cent of the interviewees in this research stated that hazard analysis was crucial in providing protection to communities. For example, a male interviewee from a government department who participates in the NCPCC said that: ‘...if you do not know the hazards and their potential impact ... how can you manage them?’ A hazard analysis involves knowledge of the kinds of hazards that might threaten the community. This knowledge includes the probability of the event occurring at varying levels of intensity and at varying locations in a community (McLoughlin 1985). In Zimbabwe, the Water Act Chapter 20:24, which regulates dam safety and construction, puts emphasis on hazard analysis. It categorises dams into four classes which are related to the hazard potential based on the risk to life and the economic consequences that can arise if the dam fails. Class 1 dams are those that give the worst-case scenario and are designed to the highest standards. According to the Act, it is mandatory for dam owners to inform the Ministry of Environment, Water and Climate of possible or existing threat of flooding and taking appropriate measures to prevent and control flooding from such dams. Tokwe-Mukosi dam whose wall height is 89.2 m, and which has a capacity of 1 802 600 000 m<sup>3</sup>, is categorised as class 1 dam (Department of Civil Protection 2014). Results of the interviews also showed that hazard analysis was believed to be crucial because it provides information about the consequences of a possible dam break which is essential in risk estimation and evacuation planning.

However, in the Tokwe-Mukosi flooding, tractability of hazard analysis was limited as few outputs could be produced to avert the flood disaster. Limiting factors cited by interviewees to explain this situation were linked to lack of methodologies, frameworks and software tools necessary to proactively manage flood wave propagation, breaching of embankments and dam break sediment effects. An engineer from a local university who was interviewed for this research stated that the existing flood risk analysis hardly addresses the problems of working with rare hydrological events (*records of river flow rarely exceed 100 years, yet typical design standards of 200 years are required*). This is

also reflected in the Tokwe-Mukosi Flood Disaster Lessons Learned Workshop, where a Zimbabwe National Water Authority (ZINWA) representative stated that ‘...inflows into the Tokwe-Mukosi dam were not predictable and much of what took place in terms of the emergency evacuation was not planned for...’ A male project officer from an NGO said that:

‘...it is difficult to estimate the consequences that will result from the actual flooding, and the probabilities of the success of actions such as evacuation of vulnerable people like the elderly ...’

In line with views of Kwon and Moon (2005), the distributions used to model some of the random variables are inappropriate relative to the expected behaviour of these variables, and as a result, simulations of the system can lead to unrealistic values of extreme rainfall or water surface levels, and hence of the probability of dam overtopping. The availability of technologies to solve the problem is therefore crucial in improving the tractability of hazard analysis.

Lack of financial resources was cited by about 40% of the interviewees as a limiting factor to achieve a comprehensive hazard analysis. An interviewee from a government department stated that ‘... funds for disasters are insufficient...’ Hazard analysis requires sophisticated and expensive equipment for modelling and highly trained personnel. Money is thus obviously necessary to buy equipment and to hire staff in order to conduct the technical analysis involved in the hazard analysis. An engineer from a local university said that lack of funding has the potential to disrupt or delay policy implementation. In general, a threshold level of funding is necessary for there to be any possibility of achieving statutory objectives (Sabatier & Mazmanian 1980). Participants interviewed, especially from NGOs, also blamed the technocratic oriented hazard analysis for ignoring community participation. An interviewee from a local NGO had this to say: ‘...hazard analysis uses scientific jargon which many locals cannot understand and as such it is difficult to engage them’. As Peters (2005) argued, high levels of technical content can create obstacles for community participation. Thus, even if citizens have opinions, they are unlikely to be effective participants in the process unless they have substantial technical expertise (Peters 2005). One can argue that the scientific and technical hazard analyses give authority to experts who then define the ‘feasible’ course of action.

### 3.3.3 Improvement of early warning systems

As discussed above, objectivism is based on the belief that the hazard is the causal agent of disasters and as such human beings must be prepared to respond to disasters. Sixty per cent of the interviewees responded that to improve disaster preparedness and response, a well-functioning early warning system that can deliver accurate, reliable and understandable warnings, in a timely manner, to disaster risk practitioners and populations at risk is crucial. As heavy rains were blamed for the disaster, early warning systems were skewed towards weather-related issues. The need for an early warning system is emphasised in the *Meteorological Services Act*, the National Climate Change Response Strategy and the Department of Civil Protection's Service Charter. Early warnings and weather forecasts are given by the Meteorological Services Department (MSD). This information is used in forecasting the river flows by ZINWA so as to assess whether there will be floods. Based on this, the appropriate authorities take the necessary steps to ensure that information is disseminated and the potential victims are evacuated before or during the flood events. The rationale for using early warning was believed to increase accuracy, lead time, communication and dissemination of severe weather and flash flood warnings to communities.

However, the tractability of early warning systems was found to be affected by how various components of the system feed into each other. As Jubach and Tokar (2016) argue, early warning systems are truly end-to-end in nature, that is, they consist of a warning and response system where the components are interconnected. Each component in this process is critical in reducing the impacts of hazards and provides essential lead times to aid decisions. Failure of one component will lead to the failure of the entire system to save lives and livelihoods (Jubach & Tokar 2016). In the interviews in this research, two problems were noted. The first problem was the inadequate lead time between the flood forecast and the flood event. The interviews revealed that this is because the models that are being used for meteorological forecasts only provide very short forecasts in an accurate manner. According to the Department of Civil Protection (2014), ZINWA had no capacity for flood forecasting and modelling and would need to investigate the integration of these in its systems. In a tight coupling system, the adverse impacts of a failure in one system may propagate, and possibly amplify, through a number of other

connected systems (Vespignani 2010). The second problem was failure to package scientific and technological information in understandable formats by communities. This made it difficult to provide accurate information on the risk associated with flooding to communities downstream. Participants from NGOs interviewed for this research stated that scientific and technical jargon systematically limits community participation as communities find it hard to understand. An interviewee from a government department had this to say: ‘...the majority of downstream residents were not aware of the extent of the flooding that could result from a dam failure’. Arguably, even state-of-the-art technology and a perfect forecast will not save lives if the populations at risk are not informed in a timely manner or do not understand the message. Consequently, well-prepared communities remain vulnerable to hazards if they do not have access to and understand information that provides the lead time needed to take necessary actions. Communications and warning or information dissemination are important attributes of a successful warning system.

### ***3.3.4 Evacuation and rescue operations***

On evacuation, approximately 53% of the interviewees of this research felt that evacuation of potential flood victims and vulnerable property when accompanied by advance planning, warning and response, and subsequent sheltering is an important means of reducing loss of life. Evacuation involves people moving from their houses or places of business to ‘safe’ locations, out of the flood risk area where they are able to shelter until it is possible and appropriate for them to return. Two interviewees from the NCPCC were convinced that evacuation before the arrival of flood must be the main approach as it ensures safety of people and property. This implies that there should be adequate arrangements of where to relocate the displaced people including the provision of food, clothing and sanitation. This view was believed to be based on the idea of ‘civil protection’.

However, evacuation exercise was burdened by a number of challenges. According to the Department of Civil Protection (2014), these challenges included lack of funds and resistance by some of the families that were supposed to be relocated. The results of the

interviews revealed that the public was not aware of evacuation routes, safe locations and warning methods. One female participant from an NGO in her 40s stated that:

‘...in this area I have not seen or heard of any flood drills being done and I haven’t seen or heard of any contingency plans for evacuation being put into practice by affected residents...’

This implies that community participation was neglected. About 27% of the interviewees mentioned that overlooking local people’s capacity and coping strategies was dangerous because it results in conflicts and worsens vulnerabilities and complicates emergency response. Interviewees viewed ineffective evacuation as being more caused by lack of community participation, and not in lack of local coping capacities. Community participation was seen as crucial because it was believed that it improves information flow, fosters collaboration, minimises conflicts and enhances community understanding of evacuation. Poor evacuation was also blamed on the idea of ‘civil protection’. An interviewee from a local university told that the idea of ‘civil protection’ was misleading because the role of the government is seen as that of a protector and the local people are conceived of as passive subjects who simply wait to receive information and directions from the government through the civil protection sector in disaster situations. Communities may thus find comfort in the fallacy of protection. They behave like children who always think older and powerful people will protect them and find comfort in the notion that, ‘if something bad happens to us, someone else bigger and better than us will come to our rescue, absorb our losses, bail us out’ (Mitroff & Pauchant 1990). This undermines people’s own capacities and coping strategies (Pelling 2003).

#### **4. Conclusion**

From the presentation above, this article clearly shows that ‘framing’ harbours ‘latent’ failures, which only become noticeable on the occurrence of a particular disaster. In the objectivist frame of disaster risk, these ‘latent’ failures are hidden in diagnostic framing, which, in turn, affects its tractability. In its framing of disaster causality, the objectivist frame places much emphasis on natural hazards and tends to ignore socio-economic processes that place the vulnerable populations at risk. Consequently, this frame has tended

to foster technocratic and bureaucratic approaches to disaster risk reduction, which then further feed the dominant concepts and imaginaries in a self-reinforcing manner (Lavell & Maskrey 2013). Efforts to minimise the devastating consequences of disasters have therefore been channelled towards dealing with the hazards using science and technology rather than the underlying vulnerabilities, which generate disaster risk. The use of scientific and technical jargon and methodologies has been found to effectively exclude communities from participating in the process of framing the problem, generating options, evaluating options and coming to joint conclusions. Furthermore, the technocratic approach associated with the objectivist frame requires significant administrative and technical expertise and funding to be tackled effectively, which are not readily available especially in developing countries. By closing off the social constructivist door one can argue that framing leads to 'ignorance' of rival frames. This 'ignorance' is not ignorance in the ordinary sense of not knowing, rather it is knowledge based on erroneous cognitive beliefs. Thus, in managing disasters, frames that threaten the dominant frame will be ignored, reinterpreted, hidden or rejected in a way analogous to the methods that individual resort to defend their own self-esteem (Brown & Starkey 2000).

This research demonstrates that framing shapes how implementation unfolds by opening up some avenues for action while simultaneously closing off others. By this, it sets parameters within which decision-making unfolds, thereby determining the regulatory path and how tractable the chosen strategy is going to be. The objectivist frame therefore becomes prone to 'policy surprise', that is, lack of preparedness based on erroneous assumptions of whether, when, where and how severely a community might be impacted by a hazard event (Parker et al. 2009). This can lead to 'policy disasters', where disasters are viewed as direct consequences of policy choices. In a tight coupling system with rigid operational structures (which it promotes), the adverse impacts of a failure in one system may propagate, and possibly amplify, through a number of other connected systems causing more chaos. In this condition, modifications necessary for coping with changed conditions are constrained by the rigidity of the system. Thus, technocratic solutions must not only be based on one system of interest, but also the unexpected consequences that cascade through other connected systems. This article thus concludes that for Zimbabwe to achieve the goal of minimising the devastating impacts of disasters, greater efforts must be made in reframing disaster risk by integrating objectivism with constructivism. This is

because disaster risk derives from a combination of physical hazards and the vulnerabilities of exposed elements.

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## **CHAPTER 5: CONSTRUCTIVIST FRAMEWORK FOR DISASTER RISK POLICY**

### **Article 4: A constructivist framework for disaster risk policy in Zimbabwe**

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## **ABSTRACT**

While the academic literature has established the importance of the constructivism perspective in disaster risk management there remains a gap in how to embrace constructivism in disaster risk decision making in many countries. The framework presented in this article is a step towards translating the conceptualization of disaster risk as a social construct into a practical set of arrangements that practitioners can use to navigate the complex and fluid landscape of disaster risk problems and solutions, especially in Zimbabwe. The framework constitutes a five-stage process of inclusivity, diagnostic, prognostic, and motivational framing and evaluation. The article concludes that this framework could aid increased stakeholder empowerment and makes the planning and decision making process more transparent and democratic. It may furthermore facilitate the building of trust, ownership, and consensus that ultimately increase the legitimacy to policy decisions and stakeholder support in disaster risk reduction.

## **KEYWORDS**

Constructivism, Zimbabwe, disaster risk reduction, risk policy, governance, framework

## **INTRODUCTION**

Conventionally, disaster risk has largely been conceptualised from an objectivist perspective. However, since the turn of the century, there has been a growing shift from the overemphasis of objectivism, to that of understanding the underlying vulnerabilities and underlying drives which create disaster risk and limits at-risk populations to achieve higher levels of resilience through development (Van Niekerk, 2015; Blaikie *et al.*, 2014; Lavell and Maskrey, 2013). Such a shift puts emphasis on the bottom-up approaches to disaster risk policy. This consequently calls for local action in order to achieve effective disaster risk management. As such, participation, incorporation of indigenous knowledge, and community-based disaster risk reduction has been increasingly acknowledged, especially by the Hyogo framework for Action 2005-2015 and its successor the Sendai Framework for Disaster Risk Reduction 2015-2030. The Sendai Framework for Disaster Risk Reduction encourages governments to seek the active contribution of relevant stakeholders including women, children and youth, persons with disabilities, poor people,

migrants, indigenous peoples, volunteers, the community of practitioners, and older persons when shaping and implementing disaster risk policies, plans and standards. However, in many countries, including Zimbabwe, the shift from response-oriented emergency management and disaster preparedness toward a more integral and comprehensive disaster risk reduction paradigm guided by the constructivist perspective of disaster risk is yet to take root (Chipangura *et al.*, 2017; Lavell and Maskrey, 2013). There remains a serious gap in how to include at-risk people in disaster risk decision making. As a result, in Zimbabwe, disaster and disaster risk continue to be viewed from the hazard paradigm (Chipangura *et al.*, 2017). With reference to Zimbabwe, this article therefore applies the idea of “constructivism” to disaster risk governance, guided by a practical question: What should a constructivist framework for disaster risk policy entail? In answering this question, this article seeks to come up with a constructivist framework that can assist practitioners to navigate the complex and fluid landscape of disaster risk problems and solutions.

## **BACKGROUND**

Disaster risk management in Zimbabwe has been largely influenced by the objectivism perspective of disaster risk (Chipangura *et al.*, 2017). In ontological terms, objectivism views disaster risk as the real, quantifiable product of nature’s impact on society independent from the social constructions of a society (Chipangura *et al.*, 2016). From this view, disaster risk has been defined as a probability of loss in relation to the impact of a specific hazard (Shefali, 2009). Thus in objectivism, nature is seen as the cause, the condition, and the propelling force that damages, destroys and kills (Fordham *et al.*, 2013). Consequently disaster and disaster risk management have been centred on the notion of civil defence and civil protection to protect populations against natural and technological disasters (Alexander, 2000a) as shown in the section below.

### **Zimbabwe’s disaster risk governance since the 1980s**

In the early 1980s, disaster risk governance has been guided by the Civil Defence Act of 1982 which was essentially a reactive and response-focused command-and-control approach to disaster risk management (Chipangura *et al.*, 2017; Mavhura, 2016; Manyena

*et al.*, 2013). In this Act, disaster risk management was viewed as a “battle or war of humanity against the hazards” (Kelman, 2011). The term “civil defence” expresses this rather militaristic approach to disaster risk management. However, according to Fidler (2007), framing disaster risk through the lens of security has been blamed for creating complexities and controversies concerning the provision of humanitarian assistance to populations affected by disasters. Top-down approaches to disaster management associated with the concept of civil defence, have been largely blamed for lack of resilience and poor preparedness on the part of sections of society affected by disasters in Zimbabwe (Bongo *et al.*, 2013b). Such an approach did little to deal with disaster risk, as disasters continue to be devastating in Zimbabwe (PreventionWeb, 2013).

The 1982 Civil Defence Act was repealed by the Civil Protection Act of 1989 which was amended in 1992 and 2001. In the Civil Protection Act, disaster risk is still predominantly seen as exogenous and unforeseen shocks rather than as endogenous (Chipangura *et al.*, 2017, Lavell and Maskrey, 2013). The Civil Protection Act 2001 (Part I, Section 2) defines a disaster as consisting of, “any (a) natural disaster, major accident or other event howsoever caused; or (b) destruction, pollution or scarcity of essential supplies; or (c) disruption of essential services; or (d) influx of refugees; or (e) plague or epidemic or disease; that threatens the life or well-being of the community”. As Chipangura *et al.* (2017) argue, part (a) and (e) of the definition of disaster in the Act (Part 1, Section 2) specifically refers to hazards while part (b), (c) and (d) are the effects of the hazards. Placing more emphasis on the hazard has a number of criticisms. Firstly, disasters and disaster risk cannot be viewed as physical phenomena only. They are products of the possible damage caused by a hazard due to the vulnerability within a community (Blaikie *et al.*, 2014). According to Cardona (2003) hazard and vulnerability have a mutual conditioning that is one cannot be vulnerable if one is not threatened, and one cannot be threatened if one is not exposed and vulnerable. Secondly, in the objectivist approach to disaster risk, public participation of people at-risk is often neglected (Warner *et al.*, 2002) as people are viewed as powerless victims of “natural” disasters (Jones and Murphy, 2009). This undermines people’s own capacities and coping strategies (Shaw *et al.*, 2013; Pelling, 2003). When people who have a stake in disaster risk management do not participate, they are unlikely to be fully in favour of a policy that is aimed at solving what they do not see to be the problem (Adams and Thompson, 2002). Thirdly, management of

disasters and disaster risk are predominantly focused on the civil protection and emergency management, as opposed to a holistic approach to disaster risk management (CADRI, 2017). Thus, the objectivist frame is reactive in dealing with disasters, which makes it prone to “policy surprises” that can lead to “policy disasters” where disasters are viewed as direct consequences of policy choices. Moreover, the idea of “civil protection” has been viewed as misleading because the role of the government is seen as that of a protector and the local people are conceived of as passive subjects in risk management (Coetzee and Van Niekerk, 2012; Chipangura *et al.*, 2017). Fourthly, the technocratic view is taken as the only way to address disaster risk problems through public policy application of geophysical and engineering knowledge (Delica-Willison and Willison, 2004). This implies that significant administrative and technical expertise and funding are needed, but these are not readily available especially in developing countries. Again, not all disaster risk problems can be solved using the application of geophysical and engineering knowledge. According to Pelling (2003), technological responses that address physical causes alone can prolong, and even increase, the losses incurred when disasters strike.

By putting too much emphasis on natural processes, the social framework within which vulnerabilities manifest is neglected (Oliver-Smith, 2013). The exposure of vulnerable people to disaster risk is therefore largely hidden and this generally inhibits the creation of socially sensitive responses at policy level. As communities continue to be important drivers of the disaster risk reduction agenda, risk reduction cannot be limited exclusively to the hazard centric, technocratic, top-down, monodisciplinary and single sector managerial and planning approach of the “objectivist” frame, a more “constructivist” approach to disaster risk management has to be considered. Arguably, Zimbabwe is lagging behind in formulating policies that address disaster risk. Consequently, the impact of disasters in Zimbabwe on the economy and population remains very high. For example, the cholera epidemic of 2008/9 killed approximately 4276 people (EM-DAT, 2015). One can therefore argue that disaster risk reduction is better guaranteed through accountable, participatory, inclusive and democratic practices. This can be achieved by embracing the notion of constructivism. More attention has to be given to how societies arrive at collective disaster risk frames as a basis for disaster risk reduction policy.

## CONSTRUCTIVISM AND DISASTER RISK

Constructivism is founded on the theoretical belief that reality is socially constructed and fluid (Chipangura *et al.*, 2016). According to Crotty (1998), constructivism focuses on the exploration of the way people interpret and make sense of their experiences in the world in which they live and how the context of events and situations and the placement of these within wider social environments have impacted on constructed understandings. As Creswell (2007) argues, it is through a dialectical process that a more informed and sophisticated understanding of the social world can be created. In disaster risk management, calls to embrace constructivism have been made by a number of authors such as Chipangura *et al.* (2016), Fordham *et al.* (2013) and, Café (2012) as well as by international frameworks for disaster risk reduction (e.g. Hyogo Framework for Action and Sendai Framework for Disaster Risk Reduction) as a means to improve disaster risk reduction. A number of arguments have been forwarded that make the application of constructivism perspective appealing to disaster risk management as outlined below.

Firstly, in disaster risk studies, constructivism presents an alternative paradigm to objectivism. From a constructivist perspective, disaster risk is seen as socially constructed through the interaction of economic, cultural and political processes operating at several different scales (Chipangura *et al.*, 2016). According to Lovekamp and Sudha (2013), disasters are viewed as socially produced through the formation of a common and shared understanding and are rooted in the social structure and reflects the processes of social change. The constructivist perspective has advanced framing of disasters as a result of vulnerability of humanity. The vulnerability approach is people centred and it concentrates on the social, political, and cultural factors of people that make them more vulnerable to loss from a hazard (Fordham *et al.*, 2013, UNISDR, 2004). In vulnerability, human beings are the principal cause of risks and disasters (Alexander, 2000b). The Pressure and Release Model developed by Blaikie *et al* in 2004 clarifies the vulnerability paradigm and conceptualise a disaster as an intersection of two opposing forces: those generating vulnerability on the one side and the physical exposure to hazard on the other (Blaikie *et al.*, 2014). In this model, one has to trace a progression that connects the impact of a hazard on people through a series of levels of social factors that generate vulnerability

(Singh *et al.*, 2014). Vulnerability is influenced by a variety of factors such as gender, class, race, culture, nationality, age, and other power relationships (Wisner *et al.*, 2004).

Secondly, constructivism is crucial in understanding how disaster risk is framed. The framing perspective is actually rooted in the constructionist principle that meanings do not automatically or naturally attach themselves to the objects, events, or experiences people encounter, but often arise, instead, through interactively based interpretive processes (Snow, 2004). “Framing” has been described as a process by which actors construct and represent meaning to understand a particular event, process or occurrence (Goffman, 1974). The term “frame” may also refer to a schemata of interpretation that enable individuals to locate, perceive, and label that which happens in their life space and the world at large (Goffman, 1974). According to De Boer *et al.* (2010), frames can be characterised as “organising principles that enable a particular interpretation of a phenomenon”. Framing disaster risk policy problems and solutions in a way that can be effective for policy design, calls for understanding the deliberative dimension of the framing process. Deliberation presents an opportunity to stakeholders to identify, clarify, and weigh the tensions among their views and the values underlying them; justify them to others; and set priorities (Black, 2014). Deliberation thus engages stakeholders in a way that helps draw out important values and trade-offs associated with how they frame disaster risk problems. This helps in creating an increased stakeholder empowerment and make the planning and decision making process more transparent and democratic (Hare *et al.*, 2003). In open deliberations, participants build trust, ownership, and consensus that ultimately increase the legitimacy to policy decisions and stakeholder support in diagnostic and prognostic framing (Basco-Carrera *et al.*, 2017). Deliberation can also promote learning. According to Baltussen *et al.* (2017), stakeholders may learn from one another and gain a better understanding of their own position. When different frames are presented, stakeholders may be triggered to reflect on their own frames, to verify their own assumptions, and to partially revise them (Baltussen *et al.*, 2017; Black, 2014). Deliberation thus allows analysing how local experiences and perceptions shape the way in which disasters are interpreted, read, analysed and understood within local priorities and knowledge systems (Bongo *et al.*, 2013a). The constructivist perspective therefore, looks at disaster risk framing as: episodes of ongoing discourse between parts of the community;

ongoing monitoring and knowledge generation; and the identification of direct and indirect causes of vulnerability (Handmer and Dovers, 2007).

Thirdly, while objectivism generally neglects public participation, constructivism embraces participation in disaster risk decisions. Warner *et al.* (2002) argue that participation in disaster risk management is an inalienable human right; people have the right to participate because their lives and/or livelihoods are affected. According to Roux *et al.* (1997), affairs of the people must be regulated in the interest of all, with a view to promoting the general welfare of society. Participation has several advantages in disaster risk management. Engaging the public dialogically in early policy stages and disaster management phases creates expanded knowledge, shared learning, personal responsibility, and increased social capital. Authors such as Manyena *et al.* (2013) argue that legislations that encapsulate community involvement would enable local communities to challenge policies and ideologies, governance, power relations and human rights abuses that are responsible for generating vulnerability. According to Hwacha (2004), participation is considered essential for identifying concerns and issues, generating solutions for addressing them, reaching agreement on how problems can be resolved. Moreover, participation invokes the use of local knowledge and expertise which are crucial in understanding local situations and contexts, planning objectives and policy measures, as well as improving and/or creating innovative and alternative strategies (Basco-Carrera *et al.*, 2017).

Fourthly, constructivism entails some policy desirable qualities (Chipangura *et al.*, 2016). In constructivism, policy is a dynamic process that occurs over time; ideologically informed; is culturally determined; occurs in arenas of conflict; is constituted by language deployed as tactic; and is informed by practice or technique (Bourk and Worthington, 2000). It allows framing policy problems in ways that facilitate strategies and tactics that are open to a variety of solutions and scenarios that would give more weight to social priorities and local potentials (Lavell and Maskrey, 2013; Fidler, 2007). As Mariyani-Squire (1999) notes, constructivism allows for a “democratic” plurality of perspectives, each and every perspective has an equal “right” to be judged as possibly valid and true for the agents holding to their respective constructions. Public policies are thus influenced and formulated by the interaction of multiple policy actors as individuals, and in organized

groups, including government officials, nongovernmental organisations and the private sector (Handmer and Dovers, 2007). Arguably, constructivism favours more community based disaster risk approaches because the community is the source of both risk generation and risk reduction. It is people centric as it endeavours to satisfy the needs of the people. There is a wide ownership of disaster risk “problems”, identification of vulnerabilities/resilience, allowing multiple definitions and perceptions. Constructivism thus opens up the possibility of greater integration of traditional democratic activities and the regulation of scientific practices according to the public interest (Mariyani-Squire, 1999).

While the concept of constructivism has been widely adopted and co-opted by the expert community, explicit policy acknowledgement of the constructivism perspective has been lacking (Shefali, 2009).

## **METHODOLOGY**

The proposed constructivist framework for disaster risk policy presented in this article was brought into reality mainly through reflection on the previous work of Chipangura *et al.* (2017), Chipangura *et al.* (2016) and Lavell and Maskrey (2013) and Adams and Thompson (2002), and a literature review and interviews with senior managers and specialists in disaster risk management in Zimbabwe. A detailed literature review was conducted in order to identify the key pillars of constructivism. In this context, the literature review ensured that the knowledge on constructivism was up to date and constructivism aspects which have been previously explored were not going to be reinvented. Most of the literature was obtained through electronic databases. Different search combinations were used to find relevant literature. The concept of *constructivism* was combined with key words like *disaster risk, deliberation, framing and framework*. A critical evaluation of the credibility of the literature was done mainly by cross-examining different authors’ logic of argumentation and conclusions.

The empirical part of the research used interviews to explore what could a constructivist framework entail. Interviews were designed to collect information on what could be included in a social constructivist framework for disaster risk. Twenty interviews were

conducted with experts who were purposively selected from about forty organisations that participate in the national civil protection committee. These included six officers from three government departments, eight programme managers from four NGOs, and six academic staff from three universities. For interview data analysis, interview records were fully transcribed to Microsoft Word documents and were imported into NVivo. This allowed the development of an initial code skeleton which included the main categories based on the main themes discussed in the interviews. These themes were: (a) diagnostic framing which centres on the identification of the disaster risk problem and who/what to blame (b) prognostic framing which is about the identification of a solution to the problem/s identified in the diagnostic framing and (c) motivational framing which focuses on translating the solutions agreed in the prognostic framing stage into actionable items or roles. The second step of coding was topic coding in which, by reading the interviews, different topics discussed in the different passages of the interviews were identified and were located in the second hierarchy nodes of the tree node. These were: (a) inclusivity (b) framing and (c) deliberation. Analytical coding (Richards, 2009) was then performed to generate new categories that formed the third hierarchy nodes which included (a) proposal which allows participants to express their initial thinking about an issue (b) argumentation where arguments for or against the proposals are presented, (c) revision which allows participants to change their thinking based on the arguments presented in the argumentation stage and (d) agreement where consensus is reached by the participants. Subsequently, the social constructivist framework for disaster risk was developed. The stages of the framework are elaborated in the section below.

## **A CONSTRUCTIVIST FRAMEWORK FOR DISASTER RISK POLICY**

From the discussion above the proposed constructivist framework for disaster risk policy (see Figure 5 for overview) proposes some steps towards dealing with the fallibility of the objectivist approach highlighted above. It embraces the idea that there is a construction process that determines how disasters and disaster risk are defined and framed, and that there are various social subjects and conceptions of nature and social actors underpinning the framing process. The framework is therefore built on the argument that if disaster risk is socially constructed, so too must be the solution to disaster risk. Consequently, it seeks to translate the conceptualisation of disaster risk as socially constructed into a practical set

of arrangements that practitioners can be used to deepen the contribution of the at-risk publics in disaster risk reduction policy formulation. As such, it is aimed at local-level implementation. Thus, the target participants and audiences are local communities, local government and local organisations. This consequently, requires the authorities that deal with disaster risk to decentralise decision making in order to engage and negotiate with local communities. This is important because, disaster risk managers at the local level have better knowledge of the unique conditions and contexts of the local people. In order to achieve fruitful deliberative dialogue, the framework should be implemented by an independent external facilitator skilled in disaster risk management and conflict management. Managing conflict is crucial in this framework because disasters generate framing contests that result in fierce competition over which interpretations hold sway over the collective imagination (Bongo *et al.*, 2013a). In this light, social conflict becomes a process of successive, competitive problem definitions by opposing sides angling for advantage and issue expansion (Chipangura *et al.*, 2016). The task of the facilitator is to assist participants in their efforts to examine their own interests and to make their own decisions. The government department responsible for disaster risk management should be responsible for the implementation of the framework, for involving all the relevant stakeholders and for leading the ethical deliberation and analysis, and when and where the deliberation will be carried out.

### **Stage 1: Inclusivity**

In objectivism, disaster risk management is dominated by non-affected or suppressive and patriarchal groups (Bongo *et al.*, 2013b). Participation of people at-risk in disaster risk management is often neglected (Jones and Murphy, 2009; Warner *et al.*, 2002, Chipangura *et al.*, 2017) yet drivers of disaster problem framing are located in the society and are shaped by society's established ways of thinking (Handmer and Dovers, 2007). The goal of inclusivity is thus to ensure that everyone is fairly represented as shown in Figure 1. Inclusivity calls for the "rights" of members of the public who are at-risk to benefit from and participate, as an actor, in disaster risk management policies and practices. The argument here is that since it is the people, who are affected by hazards, it should be their prerogative to play a part in the formulation of disaster risk reduction strategies that would benefit them. By involving people at-risk, disaster risk management would benefit from

traditional community based knowledge systems which are many times “intuitive experts” in risk management and adaptation and intuitive generators of knowledge (Lavell and Maskrey, 2013). Moreover, action would be made more equitable and responsive to the needs of people at-risk especially the disabled, women, children and ethnic minorities who are often underrepresented. Inclusivity is however not limited to people at-risk, it also includes the government/public sector (e.g. policy-makers provincial/district level institutions), civil society (e.g. non-governmental organisations, universities, research institutes and local community organisations) and the private sector (e.g. businesses). This is because the involvement of policy-makers, experts and businesses from the very beginning of the process will increase the likelihood of their support in both the process and outcome of deliberation. Bringing together the analytical perspectives and competing arguments of the public, government, civil society organisations and businesses in the policymaking process, will lead to conversations in which the horizons of both citizens and practitioners are extended through a mutual dialogue (Dryzek, 1982).

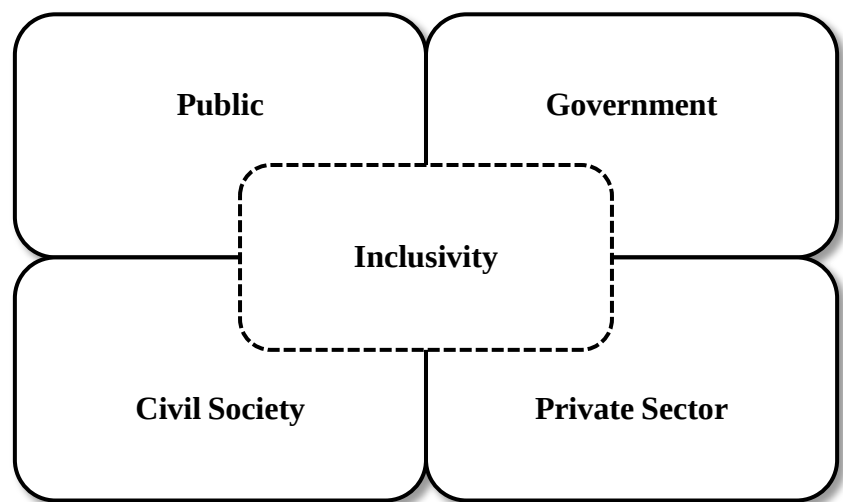


Figure 1: Inclusivity

To achieve inclusivity, baseline data about a community is crucial in establishing various categories of at-risk people in that community such as the disabled, elderly and children and stakeholders crucial in disaster management. For effective deliberation, a small number of representatives (from government, civil society and private sector) is required to keep discussions manageable, with a greater proportion given to the at-risk people. Table 1 below offers a criterion for representation that might be useful in selecting participants.

Table 1: Representation criteria

| <b>Affected Publics</b>                                                                                                | <b>Government, Civil Society, Private Sector</b>                                                                                             |
|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• <b>Is he/she based in the affected area of the community?</b></li> </ul>      | <ul style="list-style-type: none"> <li>• Is he/she based in the affected area of the community?</li> </ul>                                   |
| <ul style="list-style-type: none"> <li>• <b>Is he/she been affected by disaster/s</b></li> </ul>                       | <ul style="list-style-type: none"> <li>• Is he/she been working closely with the community in disaster risk reduction/management?</li> </ul> |
| <ul style="list-style-type: none"> <li>• <b>Does he/she have good knowledge of the local context</b></li> </ul>        | <ul style="list-style-type: none"> <li>• Does he/she have good knowledge of the local context - political, social, and economic?</li> </ul>  |
| <ul style="list-style-type: none"> <li>• <b>Was he/she elected or nominated by the community</b></li> </ul>            | <ul style="list-style-type: none"> <li>• Was he/she elected or nominated by the organisation</li> </ul>                                      |
| <ul style="list-style-type: none"> <li>• <b>Is there balanced gender/ethnic/caste/class representation?</b></li> </ul> | <ul style="list-style-type: none"> <li>• Does he/she have authority to make decisions in the local area?</li> </ul>                          |

## Stage 2: Diagnostic framing

Defining disaster risk policy problems is an act of conceptualising collective problems or challenges to be dealt with. It is important to name a problem in order to recognize its existence. Until there is a label that can be attached to an issue, it is difficult to feed into the policy process for any sort of resolution or even discussion (Peters, 2005). Diagnostic framing (see Figure 2) therefore entails the identification of a problem and who or what to blame. The objective of this stage is to clarify what the problem is. To achieve diagnostic framing, a deliberative dialogue is essential. The origin of the dialogue is not a conflict of opinions about whether a particular proposal on problem definition is true or false. Instead it is a problem posed by the need to understand which disaster risk problems are faced by the community so that appropriate measures can be taken. As highlighted above, the communities should be well represented in this stage. The problem should not be imposed on communities; rather community members should be able to define their own problems in their own way. As highlighted above this is important because people are unlikely to be whole-heartedly in favour of a policy that is aimed at solving what they do not perceive to be the problem (Adams and Thompson, 2002).

The governing questions for the deliberation dialogue in this stage can be formulated as: (1) what is the problem? (2) How is it defined? These questions are aimed at opening up discussions into what the community sees as the problem. Crucial in diagnostic framing is the argumentation step. This step is aimed at bringing together the stakeholders identified

in Stage 1 to have a group based process of participation, social exchange, reflection, learning and meaningful discussion (Kenter *et al.*, 2016) on disaster risk problem framing. It thus facilitates a dialogue among participants where various frames and counter frames; and arguments and counter arguments that are crucial in disaster risk diagnostic framing are harnessed. The profundity, comprehensiveness and meticulousness of the arguments brought for and against problem definitions is the most valuable feature of the diagnostic stage. In this stage, the continuing process of information sharing requires that opinions need to be revised in light of new facts and comments presented by other participants. After the revision of initial problem proposals, a decision about disaster risk problem definition(s) has to be made within time constraints. This stage should be closed off when the arguments and proposals considered on all sides have been sufficiently discussed so that all the relevant factors have been considered. If stakeholders fail to reach an agreement of what the problem is, then they need to reformulate problem definitions and go through the process of argumentation and revision of problem definitions.

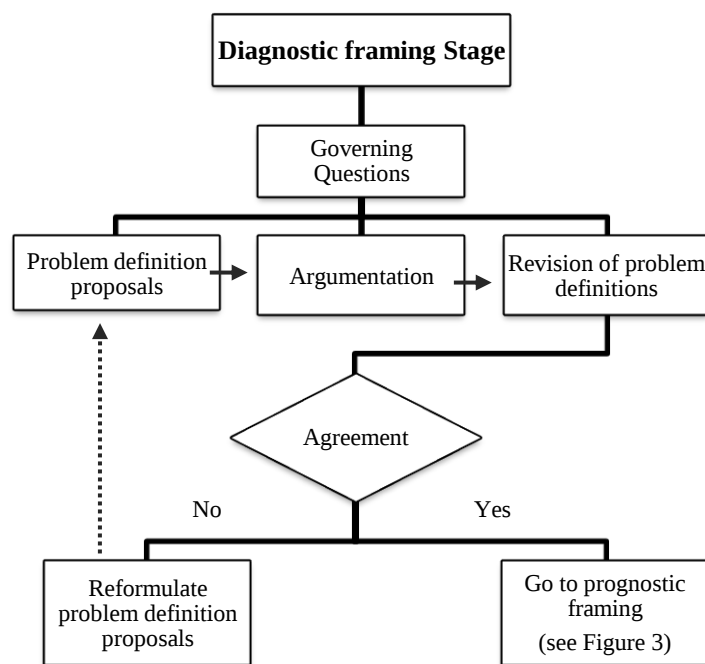


Figure 2: Diagnostic framing stage

### Stage 3: Prognostic framing

As Coburn(2006) argues, diagnostic and prognostic framing are often closely intertwined, in that prognostic framing often rests implicitly on the problem definition and attribution that is part of diagnostic framing. As such, the prognostic framing (see Figure 3) stage

focuses on providing a solution to the problem, posed by diagnostic framing in the previous stage. According to Benford and Snow (2000), prognostic framing puts forth particular goals and suggests tactics for achieving those goals. The guiding question in this stage can be formulated as: How do we solve the problem? This guiding question is meant to motivate participants to suggest solutions to the problems identified in the diagnostic stage. These solution proposals are then discussed in the argumentation step where participants identify and assess possible solutions. Tractability of various solutions has to be discussed in order to assess the solubility of the proposed solution. According to Dovers (1995), tractability describes the ease, or conversely the difficulty, with which a problem can be redressed. Consequently, as Dovers (1995) suggested, availability of means (operational policy instruments, technologies or institutional structures) and their acceptability becomes key in describing the easy or difficulty with which the problem can be solved. This process allows a cross-examination of solutions and reassess how the larger collective pool of knowledge can help minimise impacts and maximize benefits. In the revision of solutions proposals step, participants would revise various solution options in light of the arguments in the argumentation step. When revision is done, participants would need to agree on the best practical options to deal with the problem. Where participants fail to agree, they need to reformulate their proposals and go through the process of argumentation and revision in order to come up with an agreement after which they go to the next stage: motivational framing.

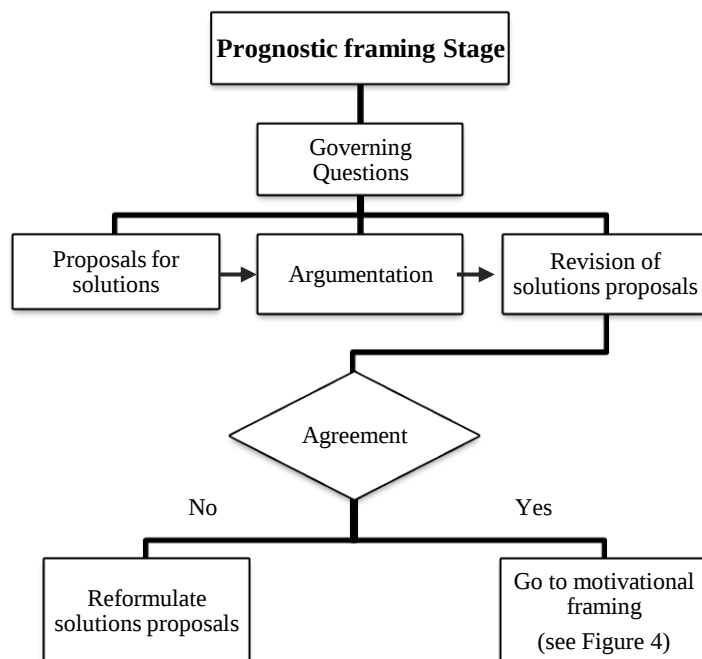


Figure 3: Prognostic framing

In prognostic framing, efforts should be made to understand policy problems identified in the diagnostic stage and tie them systematically to solution. This is important because it holds the potential to develop effective solutions to policy problems. Such an understanding of the problem can be achieved by using attributes of policy problems identified in Peters (2005) framework for understanding policy problems as shown in Table 2. In Peters (2005) framework, these attributes are “solubility”, “complexity” and “scale”.

Table 2: Peters (2005) framework for understanding policy problems (Attributes of policy problems)

| <b>Attributes of Policy Problems</b> | <b>Defining Questions for the Attribute</b>                                  |
|--------------------------------------|------------------------------------------------------------------------------|
| <b>Solubility.</b>                   | Can the ‘problem’ be solved? Or, is the problem likely to reoccur over time? |
| <b>Complexity</b>                    | How complex is the problem (political & programmatic)?                       |
| <b>Scale (of the problem)</b>        | Is the problem a large one that is not subject to ‘disaggregation’?          |

#### **Stage 4: Motivational framing**

Motivational framing is focused on the calling for “action”, compared to diagnostic and prognostic frame. As Benford and Snow (2000) argue, motivational framing is more or less a symbolic “call to arms”. The objective of this stage is to translate the solutions agreed in the prognostic framing stage into actionable items or roles. The key components of this stage are the assignment of roles to respective stakeholder groups and the identification of deliverables, upon which progress can be evaluated. The governing questions for motivational framing dialogue can be formulated as: (1) what are the roles of each stakeholder group? (2) What should their deliverables be? (3) What capacities can be built in the process? Based on the areas of responsibilities and the pool of resources agreed on in the preceding stage, the role of each stakeholder group is clarified and built into the implementation plan. Emphasis here is placed on the affected public representatives to identify areas that their constituency can or would like to partake. Roles, responsibilities and resources are revised and negotiated in the revision step to ensure that implementation will be effective. Where the affected publics in the community lack the expertise,

technology, or infrastructure to fulfil a role given to them, the government, nongovernmental organisations and businesses should provide them with the skills and tools. It is conjectured that this will help in building capacity and creating shared ownership in disaster risk reduction programs. Laying out the deliverables is an important component in motivational framing as it provides a way to evaluate progress and establish accountability. However, in the case that participants fail to agree on the assignment of roles then they need to reformulate the roles and responsibilities and go through the argumentation and revision step.

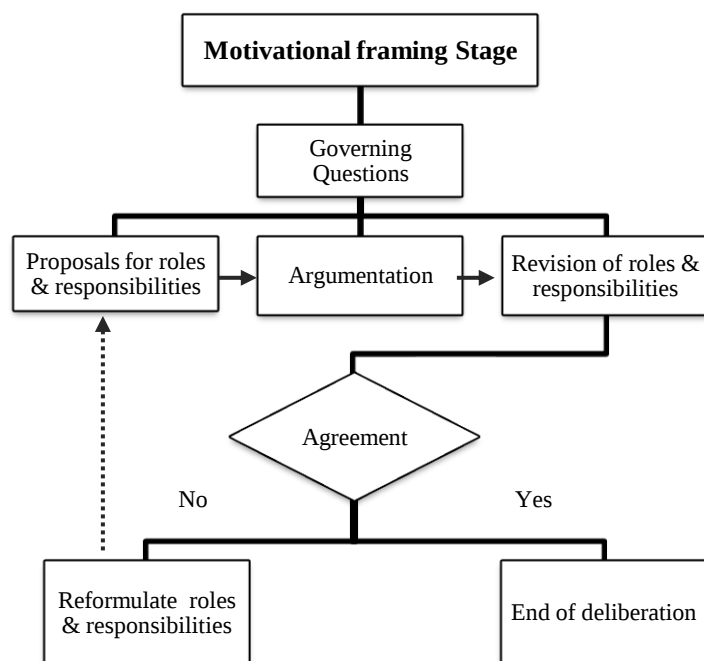


Figure 4: Motivational framing

The attributes directly tied to instruments in Peters (2005) framework for understanding policy problems as summarised in Table 3 can help in motivational framing. In Peters (2005) framework, these attributes include “divisibility”, “monetarization”, “scope” and “interdependence”. These attributes relate more to the connection between problem characteristics and instrument choice, and these variables tend to have more substantive implications (Peters, 2005).

Table 3: Peters (2005) framework for understanding policy problems (attributes directly tied to instruments)

| <b>Attributes directly tied to instruments</b>         | <b>Defining Questions for the Attribute</b>                                                                    |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Divisibility</b>                                    | Are the policy solutions ‘divisible?’ Can they be disaggregated to the advantage of particular constituencies? |
| <b>Monetarization</b>                                  | Is the problem identified and/or solvable in terms of money?                                                   |
| <b>Scope (of activity contributing to the problem)</b> | Are there large numbers of persons, organizations, or activities involved in creating the problem?             |
| <b>Interdependence</b>                                 | Can the problem be addressed well by a single agency or ministry?                                              |

### **Stage 5: Evaluation of the deliberative process**

This stage seeks to evaluate the success of deliberative processes and assess the quality of the deliberation. The purpose of this stage is to determine whether or not the process of deliberation was fair (e.g. were the views of participants accurately represented). In this stage emphasis is placed on the appraisal, analysis, and the determination of the quality of the activities and their results. In evaluation, two forms of evaluation are identified (1) process evaluation (2) outcome evaluation. Process evaluation centres on how the deliberative process was implemented and what problems were experienced. In this framework, issues such as whether inclusivity and deliberative process was conducted in an unbiased way, or whether participants had access to the appropriate resources to enable them to deliberate meaningfully would be crucial. On the other hand, outcome evaluation centres on measuring changes in specific outcomes, as well as to establish whether or not a deliberative process was effective in causing the intended changes. This can be achieved if there is, (1) clarity on the intended changes, (2) appropriate measures to track such changes, and (3) a valid and reliable mechanism to collect data about these changes. For example, did the deliberative process increase the participants’ knowledge, capacity for future deliberation, or level of trust in policy-makers? Or did the deliberative process lead to a consensual, responsive, and efficient decision?

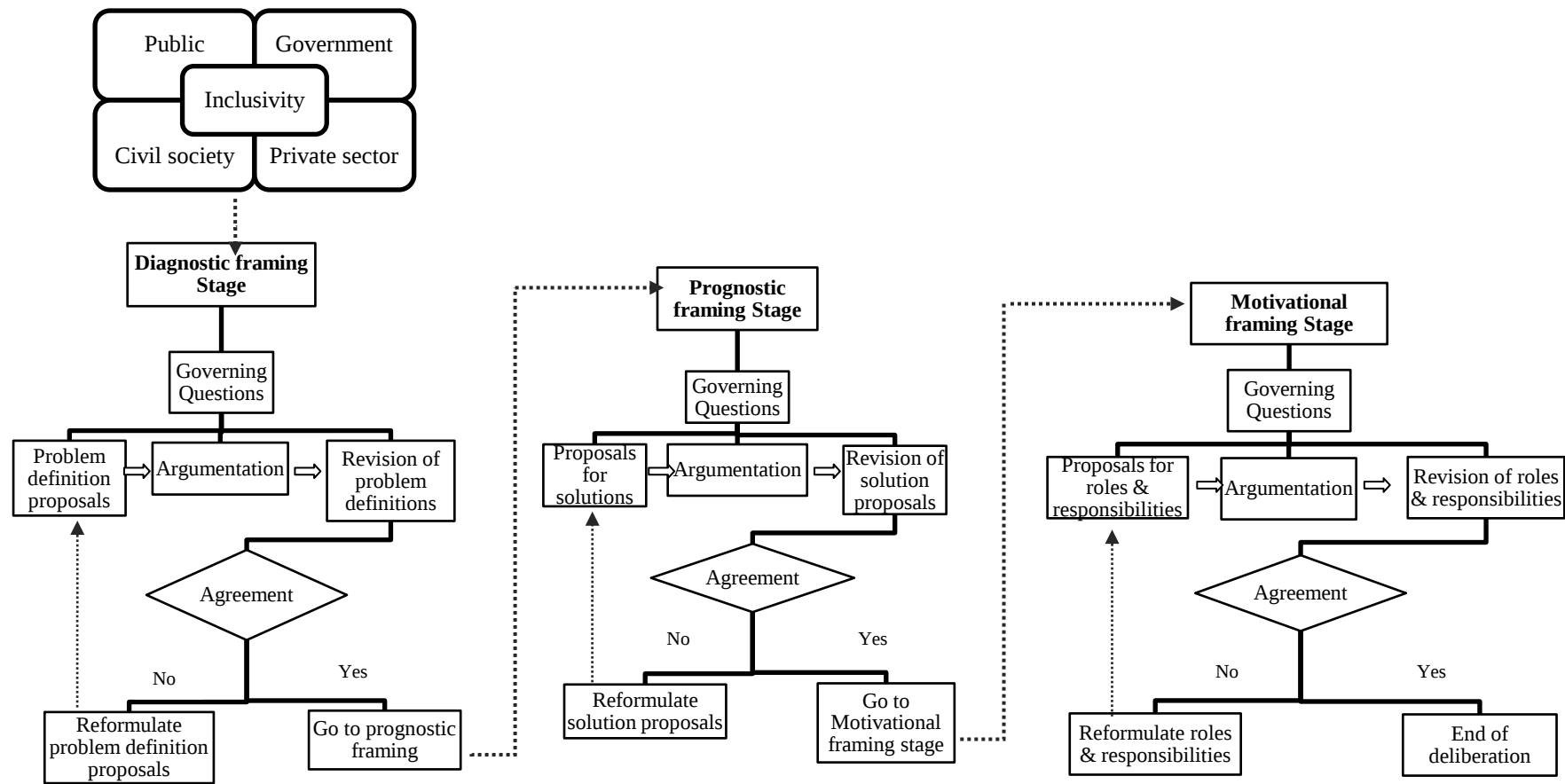


Figure 5: Constructivist framework for disaster risk policy framing

## CONCLUSION

The proposed framework presented in this article, takes into consideration, the less rigorously explored alternative “constructivism” to policy process which embraces disaster risk argumentative dimension. The framework helps in understanding how framing of disaster risk problems and solutions arises from the multiplicity of intricately, interrelated and interdependent socioeconomic, political, and cultural factors. By involving communities, this framework is a step forward towards greater inclusivity in disaster risk management. This is important as it deepens the contribution of the at-risk publics in disaster risk reduction policy formulation. In deepening the contributions of the at-risk, the framework offers participants an opportunity to put forward their proposals to the governing question/s in which they elucidate their initial understanding of the issue of concern and to have critical dialogue about those issues in the argumentation stage. The notion of argumentation is critical in this framework as it is based on the recognition that multiple perspectives are involved in the interpretation and understanding of social and political reality and the competing definitions of policy problems and solutions to which they give rise. It allows participants to receive and exchange information, to critically examine an issue, and to clarify what the problems are and, in the process lay the ground for credible solutions. While the argumentation stage allows participants to raise first their awareness of their own assumptions, the “revision stage” allows participants to suspend those pre-existing biases in order to consider new ways of viewing and resolving disaster risk issues that are significant to the community. This is important because it allows participants to think beyond initially “preferred” options and considers the implications of the proposals being made. This constructivist process is geared towards the promotion of shared meanings and assumptions that motivate people to action and allow individuals to strive for collective causes.

However, this framework can face some challenges. While the concept of constructivism has been widely adopted by the expert community, little is known about its effectiveness in disaster risk reduction as many disaster policies are objectivist in nature. Without demonstrated impacts, the platform can lose political and financial support. Another complicating factor in this framework may come from the differing agendas that various stakeholders involved come to table with. Integration can be frustrated by conflict among

various groups e.g. conflict between the objectivist view of disaster risk and constructivist response. The constant contentions involved in policy making introduced by various actors and forces at various levels may limit the effectiveness and frustrate the process of deliberations (Bourk and Worthington, 2000). In this light the success of the framework therefore depend on how conflict is managed. Moreover, there is also the danger of co-option of the at-risk people by government, civil society organisations and the private sector. This may lead to participation as promotion and co-optation of pre-designed policy which will not be in the interest of the at-risk people.

In conclusion, while this framework may be prone to some challenges, it is an important step towards translating the conceptualization of disaster risk as socially constructed into a practical set of arrangements that practitioners can use to navigate the complex and fluid landscape of disaster risk problems and solutions. The framework promotes a process of collective definition which would be responsible for the emergence of social problems, for the way in which they are seen, for the way in which they are approached and considered, for the kind of remedial plan that is laid out and for the transformation of the remedial (Grafton and Permaloff, 2005). Where people come together to consider disaster risk issues that trouble them in a deliberative dialogue, they are likely to modify their intentions so as to make common prescriptions and in so doing, they are likely to reach the mutual intention and approximately individual wish. This framework is likely to stimulate a commitment to address the root causes of disaster risk, increase capacities to cope with the effects of natural hazards and facilitate empowerment. This helps in building trust, ownership, and consensus that ultimately increase the legitimacy to policy decisions and stakeholder support in disaster risk reduction.

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## CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

### 6.1 INTRODUCTION

This study, guided by the interpretivism research approach, sought to understand how disaster risk “problems” are framed and explore the implications of framing on policy formulation and implementation. Consequently, the research aimed to identify the themes demonstrating whether a constructivist framework can be developed as a disaster risk policy for Zimbabwe. The approach of qualitative semi-structured interviews employed in the study enabled the researcher to seek out the views of practitioners and specialists in a deeper manner as well as to allow flexibility within the interview. In achieving the objectives of the study, four research articles were developed and they formed part of this thesis. This chapter attempts to discuss the outcomes of these research articles in relation to how research questions were addressed by these articles. The summary conclusion of each research article will include a brief discussion on the aim, design, main findings and the significance for practice and education on disaster risk framing and disaster risk policy in Zimbabwe.

#### **6.1.1. Article 1: An exploration of objectivism and social constructivism within the context of disaster risk**

The objective of the article was to address the thesis’s research question 1: *What is constructivism and objectivism within the context of disaster risk reduction?* This research question sought to deal with the concern in disaster risk regulatory decision making of whether disaster risk should be viewed as an objectively identifiable phenomenon (objectivism) or a subjective, socially constructed process (constructivism) (Adams & Thompson, 2002). Consequently, the article sought to understand ontologically and epistemologically what is meant by the concepts of social constructivism and objectivism within the context of disaster risk from which disaster risk policy can be analysed. The article also explored the implications of social constructivism and objectivism in disaster risk which is essential in explaining why disaster risk has different nuances and consequently policy responses. A literature review was used to explore social

constructivism and objectivism within the context of disaster risk. Academic books, journal articles, and disaster risk reports to served as primary research data.

The article showed that objectivism and constructivism are the two common opposing extremes that characterize the epistemological viewpoints in disaster risk research. Objectivism views disaster risk as the real, quantifiable product of nature's impact on society; independent from the social constructions of a society and has adopted the technocratic or hazard-centred approach to disaster risk. This view of disaster risk has dominated the field of disaster risk and has influenced the technocratic discourses, arguments, and language used in disaster risk. Its strength is that it has contributed considerably to the understanding of the hazard component of disaster risk. However, its major shortcoming has been its failure to incorporate the social aspects in dealing with disaster risk. In constructivism, disaster and disaster risk are viewed as socially produced and are rooted in the social structure and reflects the processes of social change. This perspective has advanced framing of disasters as a result of vulnerability of humanity. In vulnerability, people not physical forces are the principal cause of risks and disasters. Human beings thus have the power to reduce, or even eliminate, the toll from disasters. In managing disasters the constructivist perspective thus focuses on vulnerability reduction as the disaster risk policy's main goal. However, while the academic literature has long established the importance of the constructivism perspective in disaster risk management explicit policy acknowledgement of the constructivism perspective has been lacking.

On significance for practice and education, the article showed that differing views of disasters and disaster risk have been shaped by objectivism and constructivism perspectives. These two perspectives underpin how people make sense of the world and influence the approach that is taken to disaster risk management. These perspectives thus have repercussions on policy formulation and implementation because, the way in which a disaster risk problem is defined and framed delineates the search for solutions to that problem. One's ontological and epistemological commitment therefore underpins how one makes sense of the world and influence the approach one takes to disaster risk management. The article also showed that scholars and practitioners should understand that viewing and managing disasters through the lens of objectivism (the dominant paradigm) might not yield the desired results of minimising risk as it hides the vulnerabilities to

disaster risk. The objectivist perspective is therefore in itself considered insufficient for the study of disaster risk management and that social constructivist assumptions are required in order to analyse disaster risk. The article established that social constructivism offers a discursive approach to disaster risk policy science; one that more favourably illuminates competing local perspectives.

#### **6.1.2. Article 2: Disaster risk problem framing: Insights from societal perceptions in Zimbabwe**

The objective of this article was to answer research question 2: *How is disaster risk problem framed in Zimbabwe?* Consequently, the article sought to critically explore societal perceptions of disaster risk problems in Zimbabwe in order to give them meaning and render them manageable. To guide the article the following research questions were formulated (1) what is framing in the context of disaster risk? (2) How do disaster practitioners and local communities frame disaster risk problems? In answering these research questions, the study used a literature review and qualitative semi-structured interviews with practitioners and local people. During the analysis of the interview data, two levels at which framing can occur (i.e. diagnostic and prognostic) were used to compare how interviewees frame disaster risk problem and solutions. Two groups of disaster risk practitioners were identified through systematically studying the transcripts; one was technocratic in its approach (mostly government) while the other was constructivist (mostly NGOs) in nature. From these two groups and the local people, three frames (technocratic, vulnerability and theism) in which a disaster risk problem is framed were identified using analytical coding.

The results of the study show that the majority (70%) of the practitioners from the public sector and non-governmental organizations viewed disaster risk using the objectivist paradigm and focused on the hazard as the disaster risk “problem” to be managed through technocratic interventions. This view by the majority of practitioners was largely shaped by mandated definitions e.g. the Civil Protection Act. As such disaster risk was viewed as what the legislation specified it to be. In objectivism, rival claims such as the vulnerability or theistic frames were silenced. The silenced frames (vulnerability and theistic) were found to be crucial in understanding the social construction of disaster. The majority (82%)

of the local people used mostly the social construct and theistic frames which were shaped by their culture in both diagnostic and prognostic framing of disaster risk. The majority of the general public viewed vulnerability as the disaster risk problem to be solved. The vulnerability frame was found to be people centred. It focused on the social, political, and cultural factors of people that make them more vulnerable to loss from hazards. Thus people not physical forces are the principal cause of disasters and disaster risk. Prevention and mitigation were believed to be achieved through social rather than physical solutions. From a theistic frame, disaster and disaster risk were viewed as acts of God/god. As acts of God/god, disasters were viewed as divine retribution for human misdeeds and failings. In dealing with disasters and disaster risk, humanity was generally viewed as powerless victims of natural disasters and, thus, freed from liability for avoiding disasters. From this view, disasters are not viewed as a policy priority issue. As a result, humanity tends to do nothing about them. It is also interesting to note that the theistic view of disaster risk was seen as closely related to the vulnerability concept in that it is concerned with elements that are crucial in the vulnerability paradigm such as poverty, pollution, inequality and marginalisation. Like in the Pressure and Release Model (Blaikie et al., 1994), sin can be traced back to political and economic systems which breed 'sins' such as marginalisation and inequality.

On significance for practice and education in disaster risk management, the concept of framing highlights that disaster risk has varied meanings and interpretations between practitioners and the local people, which is embedded in their varied storylines. How disaster risk is viewed by practitioners is locked in policies, governance arrangements and instrumental systems which govern how they should interpret and deal with risk. Policies, governance arrangements and instrumental systems used in disaster risk by practitioners influences the selection of disaster risk concepts, focusing upon them, their salience and relevance, and the affect attached to them. Consequently individuals are not able to change these persistent cultural phenomena and as such, the repertoire of frames is, conceptually situated largely externally of the individual. Practitioners and scholars should therefore recognize that disaster risk should not be viewed as unitary and state-centred, but as diverse and multi-centred. Such an acknowledgement may help in understanding that the locus of disaster risk problem is not to be found primarily in governmental agencies; rather, it is to be found in the communities where risk is generated and experienced. Thus the hazard,

vulnerability and theistic frames should not be taken as opposing each other but as fundamentally interrelated and co-evolving in causing disaster risk. Disaster risk practitioners should therefore aim for a networked model of engagement where various stakeholders in the society are drawn together to form networks that can debate about disaster risk problems and formulate action plans.

### **6.1.3. Article 3: An exploration of the tractability of the objectivist frame of disaster risk in policy implementation in Zimbabwe**

Article 3 aimed to address the third research question: *How does disaster risk “problem” framing shape the emergence and nature of responses at policy level?* This research question was motivated by the desire to understand what the objectivist frame mean for disaster risk policy designs, and with what, consequences for their implementation. The article therefore sought to investigate what the objectivist frame of disaster risk mean for disaster risk policy designs in Zimbabwe and with what consequences for their implementation by looking into how framing affects tractability in implementation using the Tokwe-Mukosi flood disaster as a case study. Secondary data and semi-structured interviews were used in gathering relevant literature. Most of the secondary data was found through electronic databases. Different search combinations were used to find relevant literature. *Policy* was combined with words like *implementation, framing, tractability and disaster risk*. The empirical part of the research used semi-structured interviews to explore the tractability of policy frames in Zimbabwe. Senior managers and specialists in disaster risk management in Zimbabwe were purposively selected from government departments, non-governmental organisations (NGOs) and universities.

The results of the study revealed that majority (80%) of the interviewees defined the problem as an “act of nature”, and believed that public policy should be designed to prepare people and organise reactions to the disastrous effects of hazards. Such policy objectives were believed to be achieved through four policy responses, namely: (1) coordination; (2) hazard analysis; (3) improvement of early warning systems; and (4) evacuation. Tractability of the objectivist frame was found to be mainly affected by its limited understanding of the causes of, and solutions to disasters. In its framing of disaster causality, the objectivist frame was found to place too much emphasis on natural hazards

and tended to ignore socio-economic processes that place the vulnerable populations at risk. Consequently, this frame has tended to foster technocratic and bureaucratic approaches to disaster risk reduction, which then further feed the dominant concepts and imaginaries in a self-reinforcing manner (Lavell and Maskrey, 2013). Efforts to minimise the devastating consequences of disasters have therefore been channelled towards dealing with the hazards using science and technology rather than the underlying vulnerabilities, which generate disaster risk. The use of scientific and technical jargon and methodologies were found to effectively exclude communities from participating in the process of framing the problem, generating options, evaluating options, and coming to joint conclusions. Furthermore, the technocratic approach associated with the objectivist frame was found to require significant administrative and technical expertise and funding to be tackled effectively which are not readily available especially in developing countries. Another weakness of the objectivist paradigm in implementation was that it is reactive. This means that even if risks are known, communities tend to wait in anticipation of a disastrous event and then activate plans and procedures.

This article provides further evidence that, the way in which a problem is defined and framed circumscribes the search for solution to that problem. This article shows that framing shapes how implementation unfolds by opening up some avenues for action while simultaneously closing off others, setting parameters within which decision making unfolds, and shaping the allocation of resources. Practitioners and scholars should therefore understand that “farming” has the potential to determine the regulatory path and how tractable the chosen strategy is going to be. The article also shows that “framing” has the potential to harbour “latent” failures which only become noticeable on the occurrence of a particular disaster. These “latent” failures are hidden in diagnostic framing, thus from the very outset the governance arrangements and instrumental systems that flow from diagnostic framing will necessarily also be intractable. The reactive nature of the objectivist frame of disaster risk is prone to “policy surprise” that is lack of preparedness based on erroneous assumptions of whether, when, where and how severely a community might be impacted by a hazard event (Parker *et al.*, 2009). This can lead to “policy disasters” where disasters are viewed as direct consequences of policy choices. In a tight coupling system with rigid operational structures, the adverse impacts of a failure in one

system may propagate, and possibly amplify, through a number of other connected systems causing even more chaos.

#### **6.1.4. Article 4: An appropriate constructivist framework for effective disaster risk framing in Zimbabwe**

This article sought to answer the forth research question and the general research question: *what should a constructivist disaster risk framing framework entail?* Can a constructivist framework be developed as a disaster risk policy for Zimbabwe which will assist in disaster problem framing? This research question was motivated by the desire to deal with the fallibility of the objectivist perspective of disaster risk and to translate the conceptualization of disaster risk as socially constructed into a practical set of arrangements that practitioners can use to deepen the contribution of the at-risk publics in disaster risk reduction policy formulation. The proposed constructivist framework for disaster risk policy presented in this article was brought into reality mainly through reflection of articles 1, 2 and 3 above, literature review and interviews with senior managers and specialists in disaster risk management in Zimbabwe. In the three articles cited above, objectivism has been found to neglect participation of the at-risk populations. Twenty interviews with experts who were purposively selected from government departments, non-governmental organizations (NGOs) and universities were conducted to capture expert opinion on what a constructivist framework for disaster risk should entail.

The proposed constructivist framework for disaster risk in this article is a five-stage process of inclusivity, diagnostic, prognostic, and motivational framing and evaluation. Inclusivity brings together the at-risk populations, government/public sector, civil society and the private sector to participate in disaster risk policy framing. To achieve inclusivity, baseline data about a community was found to be crucial in establishing various categories of at-risk people in that community such as the disabled, elderly and children and stakeholders crucial in disaster management. Diagnostic framing stage centres on the identification of a problem and who or what to blame. The objective is to clarify what the problem is. The prognostic framing stage focuses on providing a solution to the problem, posed by diagnostic framing. Prognostic framing puts forth particular goals and suggests tactics for achieving those goals. Motivational framing is focused on translating the

solutions agreed in the prognostic framing stage into actionable items or roles. The key components of this stage are the assignment of roles to respective stakeholder groups and the identification of deliverables, upon which progress can be evaluated. The evaluation stage, seeks to evaluate the success of the deliberative processes and assess the quality of the deliberation. In evaluation, two forms of evaluation are identified (1) process evaluation (2) outcome evaluation. In these stages three main steps are to be followed: proposal, argumentation and revision. The proposal stage allows participants to express their initial thinking about an issue. The proposals are then discussed in the argumentation where arguments for or against the proposals are presented. While the argumentation stage allows participants to raise first their awareness of their own assumptions, the “revision stage” allows participants to suspend those pre-existing biases in order to consider new ways of seeing and resolving disaster risk issues that are significant to the community. This paves the way for agreements to be made. The framework imbeds the fluid nature of risk framing through the provision of pathways back to different stages of deliberation when stakeholders fail to reach an agreement.

By involving communities, this framework is a step forward towards greater inclusivity in disaster risk management. This is important as it deepens the contribution of the at-risk publics in disaster risk reduction policy formulation. The framework promotes shared meanings and assumptions that motivate people to action and allow individuals to strive for collective causes. Bringing together the analytical perspectives and competing arguments of the public, government, civil society organisations and businesses in the policymaking process, is likely to lead to conversations in which the horizons of both citizens and practitioners are extended through a mutual dialogue. Where people come together to consider disaster risk issues that trouble them in a deliberative dialogue, they are likely to modify their intentions so as to make common prescriptions and in so doing, they are likely to reach the mutual intention and approximately individual wish. This framework is likely to stimulate a commitment to address the root causes of disaster risk, increase capacities to cope with the effects of natural hazards and facilitate empowerment. This helps in building trust, ownership, and consensus that ultimately increase the legitimacy to policy decisions and stakeholder support in disaster risk reduction. The proposed framework is an important step towards translating the conceptualization of disaster risk as socially constructed into a practical set of arrangements that practitioners

can use to navigate the complex and fluid landscape of disaster risk problems and solutions.

## 6.2 CONTRIBUTIONS OF THE THESIS

Through article 1: *An exploration of objectivism and social constructivism within the context of disaster risk*, this thesis contributes to the epistemological and ontological analysis of what is meant by the concepts of social constructivism and objectivism within the context of disaster risk from which disaster risk policy can be analyzed. Epistemological and ontological commitment underpin how one makes sense of the world and influence the approach one takes to disaster risk. An epistemological and ontological assessment of social constructivism and objectivism in disaster risk can assist greatly in understanding the discursive dimension of disaster risk through explanations of how and why disasters are framed the way they are framed.

The thesis through article 2: *Disaster risk problem framing: Insights from societal perceptions in Zimbabwe* contributes to disaster risk framing literature by specifying how disaster risk knowledge is framed by its social producers and users which reflect the interest and culture of disaster risk policy-relevant actors. It shows that culture, is critical in framing as it influences the selection of concepts, focusing upon them, their salience and relevance, and the affect attached to them. It also contributes to literature on disaster risk reduction by showing how framing links to policy choices and action.

The thesis also contributes to the existing knowledge and debate on disaster risk policy implementation. Through article 3: *An exploration of the tractability of the objectivist frame of disaster risk in policy implementation in Zimbabwe*, it illustrates the practical consequences that the hazard interpretation of disaster risk has for disaster risk management policy and responses through a case study of Tokwe-Mukosi 2014 flood disaster. It also contributes to literature on policy implementation by showing that disaster risk cannot be entirely “tamed” by the technocratic paradigm alone, social constructivism is also required in disaster risk reduction. The thesis also contributes to the framing analysis by showing that the way in which a disaster risk problem is framed circumscribes the search for solutions to that problem. The thesis demonstrates that framing shapes how

implementation unfolds by opening up some avenues for action while simultaneously closing off others. By this, it sets parameters within which decision-making unfolds thereby determining the regulatory path and how tractable the chosen strategy is going to be.

The social constructivist framework developed in *article 4: An appropriate constructivist framework for effective disaster risk framing in Zimbabwe* contributes to the growing body of knowledge of the constructivist analysis of disaster risk. The proposed framework in this thesis is a step towards translating the conceptualization of disaster risk as socially constructed into a practical set of arrangements that practitioners can use to navigate the complex and fluid landscape of disaster risk problems and solutions. The framework also contributes to literature on community based disaster risk reduction as it seeks to deepen the contribution of the at-risk publics in disaster risk reduction policy formulation through creating a platform for an inclusive deliberative dialogue. Moreover, it establishes concrete ways to develop a methodology that can be used to promote participation in order to capture the diversity of perceptions, resources and problem definitions.

### **6.3 RECOMMENDATIONS**

The following recommendations are made:

#### **Recommendation 1: Understand the theoretical underpinnings of disaster risk**

The thesis established that epistemological and ontological foundations and context are crucial in understanding disaster risk. An epistemological and ontological assessment of social constructivism and objectivism in disaster risk can assist in understanding the discursive dimension of disaster risk through explanations of how and why disasters are framed the way they are framed. It is recommended that scholars, policy makers, and practitioners in disaster risk management understand the epistemological foundations of disaster risk because they explain how and why disaster and disaster risk has varied and multifarious nuances. Making these subjects aware of epistemological complexity might result in better understandings regarding disagreements over disaster risk problem and potential changes for resolving them.

**Recommendation 2: Embrace constructivism in disaster risk framing**

Since disaster and disaster risk derive from a combination of hazards and vulnerabilities, there is need for reframing disaster risk policy problems by moving away from the over emphasis of the objectivist paradigm, to that of understanding the underlying social constructions which generate disaster risk. In that endeavour, the hazard and vulnerability paradigms should not be taken as orthogonal but as fundamentally interrelated and co-evolving in causing disaster risk. Such a constructivist-driven approach to disaster risk can lead to engagements for greater action towards effective disaster risk reduction and help governments and societies to mitigate and prevent disaster risk.

**Recommendation 3: Strengthen the legislative/legal framework and mechanisms by embracing the proposed framework of disaster risk policy**

The thesis established that in Zimbabwe, policies enacted to mitigate, prepare for, respond to and recover from disasters have been based on the objectivism perspective. These policies have not had the desired outcome in minimizing the devastating impact of disasters. For Zimbabwe to achieve the goal of minimizing the devastating impacts of disasters, greater efforts must be made in reframing disaster risk by integrating objectivism with constructivism in disaster risk policy. This allows framing policy problems in ways that facilitate strategies and tactics that are open to a variety of solutions and scenarios that would give more weight to social priorities and local potentials. Consequently, there would be a wide ownership of disaster risk “problems”, identification of vulnerabilities/resilience, allowing multiple definitions and perceptions. Constructivism thus opens up the possibility of greater integration of traditional democratic activities and the regulation of scientific practices according to the public interest (Mariyani-Squire, 1999).

**Recommendation 4: Promote public participation in disaster risk planning**

The thesis established that the objectivist frame of disaster risk generally neglects public participation. Practitioners should therefore encourage public participation in disaster risk planning. This is important because participation invokes the use of local knowledge and expertise which are crucial in understanding local situations and contexts, planning objectives and policy measures, as well as improving and/or creating innovative and alternative strategies. Moreover, when the at-risk people do not participate in diagnostic and prognostic framing, they are unlikely to be whole-heartedly in favour of a policy that is

aimed at solving what they do not perceive to be the problem. Participation should embrace the notion of inclusivity to ensure that everyone is fairly represented. This thesis has argued that, since it is the people, who are affected by hazards, it should be their prerogative to play a part in the formulation of disaster risk reduction strategies that would benefit them. By involving people at-risk, disaster risk management would benefit from traditional community based knowledge systems. To achieve inclusivity, baseline data about a community is crucial in establishing various categories of at-risk people in that community such as the disabled, elderly and children and stakeholders crucial in disaster management.

#### **6.4 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH**

This section discusses the limitations of this research and proposes options for addressing these issues in future work. As mentioned earlier, social constructivism positions are founded on the theoretical belief that reality is socially constructed and fluid, so substantial findings are only applicable to the Zimbabwean scenario, though general statements and the frameworks constructed and the methodology used can be applied to other settings. The methodology used in this research focused mainly on the views of disaster risk practitioners. This limited the analysis of this research to a detailed description and juxtaposition of dominant discourses in disaster risk management. Future research should thus include a larger number of participants from the at-risk population in order to capture hidden discourses in communities. Longitudinal studies are also suggested for future research. Longitudinal studies helps in capturing disaster risk “problem” framing within a historical context, where framing trajectories that enables or restricts problem definition can be followed. This helps in capturing changes in the institutional systems affecting disaster risk management organisations and economic, social and political macro-variables that may change over time and influence perceptions.

This study proves that disaster risk is framed differently by different people. For example in Chapter 3 locals indentified witchcraft, corruption, industrial crisis, farm invasions, dumping of hazardous waste, large-scale evictions and the issue of brain drain as disaster risk which all disaster risk practitioners did not. Therefore, additional research that focuses on the socio-cultural variables such as ethnic groupings, religious beliefs as well as other

critical information related to the unique characteristics of the community needs to be taken into consideration in order to provide a comprehensive disaster risk frame analysis. In Chapter 4, the analysis of tractability was limited to the objectivist frame. This research suggests that more studies are needed to explore the tractability of other disaster risk frames such as the constructivist frame. The proposed framework presented in Chapter 5, takes into consideration, the less rigorously explored alternative “social constructivism” to policy process. However, while the concept of social constructivism has been widely adopted by the expert community, little is known about its effectiveness in disaster risk reduction as many disaster policies are objectivist in nature. The constant contentions involved in policy making introduced by various actors and forces at various levels may limit the effectiveness and frustrate the process of deliberations. To improve the success of the framework more research is required to understand how conflict is managed in deliberative dialogues and how arguments are constructed.

## **6.5 CONCLUSION**

This study provided a detailed insight into how disaster risk is framed in Zimbabwe and has shown the implications of framing on policy formulation and implementation. The study employed both the study of literature and empirical research. Through article 1, the study traced the development of the two main interpretations of disaster risk (hazard and vulnerability paradigms) and showed how they are based on two distinct framings (objectivism and social constructivism) of the disaster risk. Through article 1 this study showed that objectivism and social constructivism prioritizes the production of different types of knowledge, and emphasizes different types of responses to disaster risk. In objectivism the hazard is blamed for disaster risk while in social constructivism disaster causality is blamed on vulnerability. Yet disaster risk is caused by both hazards and vulnerability. Through article 2, the study established empirically how disaster risk is framed in Zimbabwe. It was found out that disaster risk is mainly framed using the objectivist perspective of disaster risk by practitioners while the at-risk people used the vulnerability paradigm. These findings motivated this study to explore the tractability of the objectivist frame of disaster risk in policy implementation in Zimbabwe using Tokwe-Mukosi 2014 flood disaster as a case study. The study through article 3 thus clearly demonstrated that framings of disaster risk do matter because framing influences policy

responses that are prioritised. This study has shown that the objectivist based disaster risk policies are not tractable to a larger extent. To deal with the fallibility of the objectivist frame of disaster risk, this study proposed a constructivist framework for disaster risk in chapter 5 through article 4. The proposed framework is a five-stage process of inclusivity, diagnostic, prognostic, and motivational framing and evaluation which is meant to help practitioners to translate the conceptualization of disaster risk as socially constructed into a practical set of arrangements navigate the complex and fluid landscape of disaster risk problems and solutions. In conclusion this study has clearly shown that how a problem is framed is critical as it circumscribes the search for solution to that problem and determines how tractable the chosen solution is going to be in its implementation. Framing of disaster risk therefore provides a firm theoretical basis for the design of effective disaster risk management policy.

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## **APPENDIX A: LETTER OF PERMISSION FROM CO-AUTHORS**

**AFRICAN CENTRE FOR DISASTER STUDIES**

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28 November 2018

Mr. Paul Chipangura

Ph.D student: NWU

Dear Mr. Chipangura,

**LETTER OF PERMISSION**

We hereby, as co-authors, give Mr. Paul Chipangura permission to use the following articles as part of his Ph.D thesis:

Chipangura, P., Van Niekerk, D., Van der Walddt, G. 2018. An appropriate constructivist framework for effective disaster risk policy in Zimbabwe. *International Journal of Risk Assessment and Management* (in review).

Chipangura, P., Van Niekerk, D., Van der Walddt, G. 2018. An exploration of the tractability of the objectivist frame of disaster risk in implementation in Zimbabwe. *Jamba: Journal of Disaster Risk Studies*. (in press).

Chipangura, P., Van Niekerk, D. and Van Der Walddt, G. 2017. Disaster risk policy problem framing: insights from societal perceptions in Zimbabwe. *International Journal of Disaster Risk Science*. doi: 10.1016/j.ijdr.2017.02.012.

Chipangura, P., Van Niekerk, D., and Van der Walddt, G. 2016. An exploration of Objectivism and Social Constructivism within the context of disaster risk. *Disaster Prevention and Management*. 25(2). doi: 10.1108/DPM-09-2015-0210.

Kind regards,



**Prof. Dewald van Niekerk (and on behalf of Prof. Gerrit van der Walddt)**

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e.g. AumueLLer, D. (2005), "Semantic authoring and retrieval within a wiki", paper presented at the European Semantic Web Conference (ESWC), 29 May-1 June, Heraklion, Crete, available at: <http://dbs.uni-leipzig.de/file/aumueLLer05wiksar.pdf> (accessed 20 February 2007).

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*The International Journal of Disaster Risk Reduction* (IJDRR) is the journal for researchers, policymakers and practitioners across diverse disciplines: Earth Sciences in its entirety; Environmental Sciences; Engineering; Urban Studies; Geography; and Social sciences. IJDRR publishes fundamental and applied research, critical reviews, policy papers and case studies focusing on multidisciplinary research aiming to reduce the impact of **natural** and **technological disasters**. IJDRR stimulates exchange of ideas and knowledge transfer on **disaster research, mitigation, adaptation, prevention** and **risk reduction** at all geographical scales: local, national and international.

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All illustrations, whether diagrams or photographs, are referred to as Figures. If any figures appear in colour, please note that they will only appear in colour in the online version; in the printed version they will be in black and white. If the quality of the colour figure supplied is not suitable to be produced in colour, it will also be shown in black and white in the online version. Figures should ideally be black and white, not colour, and numbered sequentially. However, if colour is essential to the figure please send a good quality colour image. Please place them at the end of the article, rather than interspersed in text.

Please prepare all figures, especially line diagrams, to the highest possible standards. Bear in mind that lettering may be reduced in size by a factor of 2 or 3, and that fine lines may disappear.

#### 7. Units of Measurement

Inderscience journals follow the *Système International (SI)* for units of measurement.

rial units will be converted, except where conversion would affect the meaning of a statement, or a greater or lesser degree of accuracy.

## 8. International Context

It should not be assumed that the reader is familiar with specific national institutions or corporations. Authors are encouraged to approach their chosen topic with an international perspective.

Countries and groupings of countries should be referred to by their full title (for example, 'Europe' and 'America' are ambiguous).

Special attention should be paid to identifying units of currency by nationality.

Acronyms should be translated in full into English. (See also 'Translated works' below.)

## 9. Translated Works

Difficulty often arises in translating acronyms, so it is best to spell out an acronym in English (for example, IIRP - French personal income tax).

Similarly, labels and suffixes need careful attention where the letters refer to words which have been translated.

The names of mathematical functions may change in translation - check against an English or American mathematical reference text.

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#### INPAGE MENU

##### Abridged structure

- Book Reviews
- Opinion Papers
- Original Research Articles
- Cover Letter

##### Full structure

- Original Research Article
- Book Review

##### Overview

The author guidelines include information about the types of articles received for publication and preparing a manuscript for submission. Other relevant information about the journal's policies and the reviewing process can be found under the about section. The **compulsory cover letter** form part of a submission and is on the first page of the manuscript. It should always be presented in English. [See full structure of cover letter below.](#) After the cover letter the manuscript body starts.

##### Book Reviews

Book reviews are brief articles providing insights or opinions on new books within the research field of the journal. Please contact the editor if you would like to suggest a book for review.

|            |            |
|------------|------------|
| Word limit | 1000 words |
|------------|------------|

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Short opinion pieces or personal perspectives (not research papers) personal viewpoint on a fundamental disability or rehabilitation concept or development that highlights recent exciting research or policy developments. With rare exceptions, these essays are meant to express a personal viewpoint and should have no more than two authors.

|                   |                                                               |
|-------------------|---------------------------------------------------------------|
| Word limit        | 2000 words (excluding the structured abstract and references) |
| Abstract          | n/a                                                           |
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| Tables/Figures    | no more than 2 Tables/Figure                                  |
| Ethical statement | should be included in the manuscript                          |

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An original article provides an overview of innovative research in a particular field within or related to the focus and scope of the journal, presented according to a clear and well-structured format.

|                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
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**Title:** The article's full title should contain a maximum of 95 characters (including spaces).

**Abstract:** The abstract, written in English, should be no longer than 250 words and must be written in the past tense. The abstract should give a succinct account of the objectives, methods, results and significance of the matter. The unstructured abstract for an Original

Research article should consist of five paragraphs unlabelled Background, Objectives, Method, Results and Conclusion.

- **Background:** *Why do we care about the problem?* State the context and purpose of the study. (What practical, scientific or theoretical gap is your research filling?)
- **Objectives:** *What problem are you trying to solve?* What is the scope of your work (e.g. is it a generalised approach or for a specific situation)? Be careful not to use too much jargon.
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- **Results:** *What is the answer?* Present the main findings (that is, as a result of completing the procedure or study, state what you have learnt, invented or created). Identify trends, relative change or differences on answers to questions.
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**Introduction:** The introduction must contain your argument for the social and scientific value of the study, as well as the aim and objectives:

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- **Setting:** A description of the setting for the study; for example, the type of community from which the participants came or the nature of the health system and services in which the study is conducted.
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- **Intervention (if appropriate):** If there were intervention and comparison groups, describe the intervention in detail and what happened to the comparison groups.
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**Discussion:** The discussion section should address the following four elements:

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## Book Review full structure

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