

# Expressions of responsibility for disasters within vulnerable communities

– the case of Fisantekraal

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Responsibility, disaster risk reduction, hazards, vulnerability, informal settlement, Fisantekraal, South Africa, high-risk community, quantitative study, SPSS, disaster risk management, disaster risk governance.

**Abstract**

A field study was conducted in Fisantekraal, one of 20 high-risk communities in Cape Town, home to both a formal part consisting of low-cost government housing and an informal settlement. People in Fisantekraal are exposed to several different types of hazards and have problems with reoccurring disasters, especially in the informal settlement. Face-to-face interviews with people living in the two parts shows that people consider the responsibility to be shared between the government, community leaders and the civil society. Opinions about the importance of involving the community leaders are especially expressed in the informal settlement. A desire that the government should take more responsibility is also expressed; people are discontent with the high amount of responsibility they have in the current situation. The opinions are in general similar between different subgroups within the community. The elderly do however have a higher confidence in the government and are more satisfied with how disastrous events are handled compared to younger people. People in the formal part and the informal settlement share similar opinions, despite the differences in vulnerability towards disasters.

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## Summary

A large number of people live in various informal settlements in South Africa today. The current government estimate is 2700 informal settlements countrywide and growing. Informal settlements are often located in marginalized, low-lying and environmentally fragile areas that are unsuitable for residential purposes, e.g. wetlands and floodplains. A wide range of hazards is present that poses threats to the inhabitants, including fires, floods, poor health, crime and severe weather events. Despite efforts from the government to improve the situation, a large number of people are affected by disasters every year.

There is a wide international consensus that shared responsibility among many actors and stakeholders is needed in order to reduce risks and the impacts of disasters. This is acknowledged by the South African government and it is therefore interesting to see if this view is actually reflected in the opinions of people affected by disasters. The purpose of the thesis is to examine what opinions the residents in a disaster prone, low-income community express concerning responsibility for the prevention and mitigation of disaster risks as well as for response and relief in case of a disaster. A field study is conducted in Fisantekraal, one of 20 high-risk communities in Cape Town, in order to meet the purpose. Fisantekraal is home to both a formal part consisting of low-cost government housing and an informal settlement. It is primarily the informal settlement that has problems with reoccurring disasters and it is therefore further examined if the opinions differ between people living in the formal and informal part. Whether the opinions differ between other groups such as gender, age and employment status are also examined.

The study is preceded by a literature review of the South African context and discussions with local expertise within the field of disaster risk management in Cape Town. The data is collected in a standardized way using a questionnaire, which is made available in the three most spoken languages in Fisantekraal: English, Afrikaans and Xhosa. Face-to-face interviews with help of research assistants from the community is considered the best option in order to collect the data and interviews with 200 randomly sampled respondents are conducted over a period of 13 days. The collected data is analyzed using both descriptive and inferential analysis with help of IBM SPSS Statistics.

So, what opinions do people in Fisantekraal express concerning responsibilities for disasters?

People in Fisantekraal do not consider the responsibility for disasters to be shared between different actors and stakeholders to the same extent as stated in the South African National Disaster Management Framework. Overall, people consider the responsibility to be shared between the government, community leaders and civil society. Local and international organizations are not considered to be active in the disaster risk management process. People further express opinions that the government needs to take a bigger responsibility for preventing and managing disaster risks in the community.

People express opinions about the importance of involving the community leaders in the disaster risk management process. This is widely shared among the community as whole, but people in the informal settlement express these opinions more clearly. In most other cases, people in the two parts seem to share similar opinions about responsibility for disasters. The difference in vulnerability and living conditions in the two parts do not seem to influence the people's opinions to any greater extent.

The study also shows that differences in opinions between various groups of the population are hard to come across. People of different ages do however not share the same opinions. Older people have a higher confidence in the government and are more satisfied with how disastrous events are handled. Young people do, on the other hand, not have as high

confidence and are also more critical with how the situation is dealt with. People with a low level of education share the same opinions as the elderly. This is explained by the correlation between age and education level that exist in Fisantekraal.

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Last but not least, many thanks to all the people in Fisantekraal, who welcomed us into their homes and allowed us to conduct our research during 13 unforgettable days. Special thanks to Laetitia (community leader in Fisantekraal), Mafoya and James (research assistants) for making the time in Fisantekraal memorable and for keeping us safe from all the ‘robbers’.

The image shows two handwritten signatures in black ink. The first signature on the left is 'Patrick Abulqre' and the second signature on the right is 'Laetitia'. Both signatures are written in a cursive, flowing style.

Cape Town, South Africa, May 2013.



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# 1 Introduction

Countries in the developing world are struggling with increasing disaster risks due to a range of factors making them more vulnerable, e.g. poverty, poorly planned and managed urbanization, environmental degradation and weak governance (UNISDR, 2013). In addition to this, climate change is expected to increase the frequency and the intensity of the most severe weather events in the future (IPCC, 2012). Efforts to reduce disaster risk are in other words becoming increasingly important, and the global community acknowledges this as a prerequisite for sustainable development and the achievement of the Millennium development goals<sup>1</sup>. This makes disaster risk governance – the government’s obligation and responsibility to ensure the safety of its citizens in case of a disaster – an important concept to consider (van Niekerk, 2011). There are many different strategies that can be used to reduce disaster risks in a society. Risk assessments, education to build a culture of safety and resilience, increased capacity for effective response and use of early warning system, are all examples of vital parts in order to reduce the risk of disasters. Disaster risk reduction and disaster risk management are thus two fundamental concepts for the fulfillment of this task and it is crucial that governments take responsibility and commit to implement them in practice (van Niekerk, 2011).

South Africa is an upper-middle income country and has the largest and most industrialized economy in Africa (World Bank, 2012; Turok, 2012). Despite this, the country is still struggling with many of the same problems as developing countries (UNDP, 2004). High levels of poverty and high urbanisation, as well a massive housing backlog<sup>2</sup>, have left many people without formal permanent housing (Turok, 2012). As a consequence a large number of people live in so called informal settlements, often lacking basic services and infrastructure and located in high-risk areas unsuitable for residential purposes (Turok, 2012; Napier, 2002). The number and size of informal settlements are increasing and the latest government estimate indicates around 2700 such settlements countrywide, accommodating more than 1.2 million households (SACN, 2011).

The Western Cape province in South Africa is home to a large number of informal settlements, experiencing a wide range of hazards, e.g. fires, floods, poor health, crime and severe weather events (DiMP, 2008). Every year a large number people suffer the consequences of disasters. The South African government has developed policies and planning documents in order to reduce the problems with reoccurring disasters in informal settlements. However, the problem with disasters remains and it is the poor people living in informal settlements that bear the biggest consequences (DiMP, 2008). One of the 20 high-risk townships in the Western Cape province is Fisantekraal<sup>3</sup>, with its formal part with low-cost government housing and its informal settlement with shacks.

There is a wide international consensus that shared responsibility among many actors and stakeholders is needed in order to reduce risks and the impacts of disasters (UNISDR, 2013). This is acknowledged by the South African government, who states in their National Disaster Management Framework (NDMF) that: *“Disaster risk management is a shared responsibility which must be fostered through partnerships between the various stakeholders and co-operative relationships between the different spheres of government, the private sector and civil society”* (NDMC, 2005). And the national slogan for disaster risk management in South Africa is *“Disaster risk management is everybody’s business...Towards a resilient South*

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<sup>1</sup> Eight development goals established in 2000 and adopted by the UN member states to fight extreme poverty in its many dimensions (income poverty, hunger, disease, lack of adequate shelter), while promoting gender equality, education and environmental sustainability (Millennium Project, 2006).

<sup>2</sup> A backlog is an accumulation of uncompleted work or matters needing to be dealt with.

<sup>3</sup> Direct communication with Stephen van Rensburg, City of Cape Town DRMC (Head: Area North), 2013-03-04.

*Africa!*" (NDMC, 2008). However, with considerable challenges for reducing disaster risks in the townships of Western Cape province, it is interesting to investigate what opinions vulnerable people express regarding such responsibility. Especially as it is not only Fisantekraal that is divided into a planned formal part and a spontaneous informal part, but also several other townships in South Africa.

### **1.1 Purpose and research question**

The purpose of the thesis is to examine what opinions the residents in a disaster prone, low-income community express concerning responsibility for the prevention and mitigation of disaster risks as well as for response and relief in case of a disaster. The purpose is further to study if the opinions differ between various groups of the population, for example between people living in formal and informal housing, between young and old, males and females, between affected/non affected. The findings from the study can hopefully be helpful to decision makers in the allocation of resources for disaster risk reduction. To meet the purpose, the study intends to answer the following research question:

- What opinions do people in Fisantekraal express concerning responsibility for disasters within their community?

### **1.2 Structure of report**

The report consists of six chapters: Introduction, Theoretical framework, Methodology, Analyzing the results, Discussion and Conclusion. The introduction aims to provide background knowledge, motivate why the field of study is interesting and to present the research question. The theoretical framework presents the concepts necessary for understanding terms related to the field of disaster risks and how they should be managed in an optimal way. It also gives insight into the South African context where vulnerable communities and the disaster risk management in South Africa are explained. The methodology aims to provide information about how the location of the study was chosen and it further explains how the data was collected and analyzed. The results from the study are presented in analyzing the results where the collected data is analyzed in order to examine what opinions people express in general as well as investigate if the opinion differ between different subgroups. The discussion then aims to put the results in a broader context and also discuss what influence some potential biases might have on the results. The last chapter presents conclusions from the study.

## **2 Theoretical framework**

The chapter aims to provide necessary background knowledge. The concepts necessary for understanding disaster risk governance are presented, as well as an introduction of disaster risk management and informal settlements in the South African context.

### **2.1 Conceptual framework for disaster risk governance**

The damage caused by disasters of different kinds has always been a threat to humanity, but the way disasters have been dealt with has changed over the decades. A focus on relief and response has until just a few decades ago been the primary way to handle disasters (Yodmani, 2000). Nowadays a greater focus is on prevention, mitigation and preparedness. Disasters are not in the same way seen as extreme events to only respond to. The focus has rather shifted to an aim where the emphasis lies on measures to reduce the risk of different hazards within the community (van Niekerk, 2005).

The number of reported disasters and their impact on both human and economic development has been increasing yearly over the last decades. Since the year 2000, over 2.7 billion people have been affected and more than 1.1 million people have been killed by natural disasters (UNISDR, 2012). The connection between disasters and development is today well researched, as well as the linkage between poverty and vulnerability for disasters (UNISDR, 2012).

Disasters, risk, vulnerability and hazard are key conceptual terms linked to the field of disaster risk governance. These are briefly defined and discussed.

#### **2.1.1 Disaster**

There are many different definitions of the term disaster. Social and natural science often have different type of frameworks when defining a disaster. Natural scientist tend to have a more exact idea of which physical forces (e.g. magnitude of earthquakes, severity of storms) that are required while sociologist are more interested in the form and function of a social system (Alexander, 2005). One must however understand that there is a danger in separating disasters in the events that causes them from the social framework that gets influenced (Wisner et al, 1994).

Another well-debated topic when it comes to defining a disaster is at what scale an event has to be in order to evolve from an accident into a disaster. The Centre for Research on the Epidemiology of Disasters (CRED) maintains a worldwide database on disasters and two of the measurement they use to define whether an event is a disaster or not is that ten or more people are reported killed or hundred or more people are affected. However, this classification does not consider the complexity related to subjectivity with the term disaster. A less dramatic event with no deaths such as drought in a poor rural area can by the affected farmers be classified as a disaster (Buckle, 2005).

It is important to not only focus on sensational large events like earthquakes when disasters are being discussed (Wisner et al, 1994). There are also disasters that are results of cumulative effects, e.g. traffic accidents, diseases, violence, and these events require different kinds of planning and management. Some researchers further claim that there are more important concerns than defining the term. Time and intellectual capital should rather be spent on researching why our communities are vulnerable instead of trying to define what a disaster is (Cutter, 2005). It is of course useful to have a common and shared understanding whenever discussing an event or process, but the level of precision when discussing a complex phenomenon like disasters is limited (Buckle, 2005).

UNISDR defines a disaster as “*a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources*” (UNISDR, 2009). This definition emphasize that disasters are a result of a combination of exposure to hazard and the vulnerability present. One can in other words state that if there are hazards in a society but no vulnerability no disasters will occur and vice versa.

### **2.1.2 Risk**

There are many different definitions of the term risk; Renn (1998) defines risk as the “*possibility that human actions or events lead to consequences that have an impact on what humans value*”. This definition implies that the term can have different meanings depending on what humans value. Kaplan & Garrick (1981) argues that when defining risk one is really asking three questions: *What can happen? How likely is that to happen? If it does happen, what are the consequences?* This definition is commonly referred to as the risk triplet and commonly used as a basis when conducting risk assessments (Haines, 2004).

Distinctions are often drawn between objective and subjective risks. The objective risks are based on a scientific process, while the subjective risks are rather based on how the public perceives different risks (Smith, 2001). Many surveys and psychological experiments have demonstrated that the perceived seriousness of risks of the public is different from the calculations of risks that have been done by the professionals. Most people overestimate large-scale technological risks such as accidents at nuclear power plants and underestimate risks with lower catastrophic potential (Renn, 1998). The public risk perception differs depending on many factors; fear and controllability are examples of aspects that people take into account when risks are perceived (Renn, 1998).

### **2.1.3 Hazard**

A hazard is defined as “*a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage*” (UNISDR, 2009).

There are wide ranges of hazards in South Africa (main study context) and divisions into different categories are often made for an easier overview. According to Wisner & Luce (1995) the most common hazards in South Africa can be divided into the following categories:

- Geophysical/climatic hazards – floods, drought, wild fires, storms, landslides, earthquakes, etc.
- Technological hazards – industrial explosions and fires, air pollution, waste exposure, reservoir failure, nuclear accidents, etc.
- Biological hazards – HIV infection, drug overdose, childhood cancer, heat exhaustion, water-born disease, etc.
- Social hazards – violent crime, child poverty, homelessness, etc.

The list of hazards above does not in any way claim to be comprehensive but rather demonstrate the width of hazards that exist in South Africa (Wisner & Luce, 1995). It is evident that many hazards interact with each other and that they sometimes are hard to separate. A division into slow-onset and rapid-onset hazards is often used, where slow-onset hazards take a long time to develop, e.g. droughts and disease epidemics. The rapid-onset hazards strike rapidly and with less time for warning, e.g. earthquake, wildfires and severe storms (Wisner et al., 1994).

#### **2.1.4 Vulnerability**

Vulnerability is defined as “*the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard*” (UNISDR, 2009).

Vulnerability is a complex term and there are many aspects of it depending on whether it is physical, social, economic or environmental factors that are discussed. Examples of vulnerability within a community may include poor construction of buildings, lack of public information and awareness, and inadequate access to water and sanitation services (UNISDR, 2009). It is important to remember that different people within the same community may have different levels of vulnerability. Gender, health status, age and the extent of social networks are examples of key variables, which might define variations in vulnerability within a community (Wisner et al., 1994).

With increased vulnerability it follows that a hazardous event striking the community will result in greater destruction. An example of this is two earthquakes striking locations with different level of vulnerability; the United States of America and Nicaragua. Although the two earthquakes were of the same magnitude the outcomes of the two events were completely different. The earthquake in San Fernando, California, resulted in 58 deaths while the earthquake that affected Managua, the capital of Nicaragua, resulted in more than 6000 deaths. Similar patterns have been observed in many other disasters and it is clear that peoples and communities vulnerability is a key factor when determining the possible impact of disasters (Yodmani, 2000).

Vulnerability is often correlated with poverty and poor people in general suffer harder from disasters than rich people (Wisner et al, 1994). There are several reasons for this. Firstly, money can buy stable houses and engineering solutions, which make rich people live in more stable and safe buildings. Secondly, many poor people have no choice but to live in hazardous areas like hillsides, prone to landslide risks, or on the edge of a waste dumps. Thirdly, the consequences of a disaster for the rich are much less severe than for the poor. The rich have more savings and they will get most of what they lost back since their homes and belongings are usually insured. The poor on the other hand can lose everything they own in a disaster, e.g. clothes, home, tools for work, and are generally not insured (Wisner et al, 1994).

Often when vulnerability is discussed the term capacity is mentioned. Capacity is defined as “*the combination of all the strengths, attributes and resources available within a community, society or organization than can be used to achieve agreed goals*” (UNISDR, 2009). Infrastructure, well-organized institutions, service-delivery, leadership and management as well as human knowledge are all examples of capacities that are relevant when it comes to how well a society can cope with disasters. If the capacity for a certain task is not at a desirable level something needs to be done in order to improve the situation. The process by which people, organizations and societies systematically try to develop their capacities in order to reach an improvement of knowledge, skills, systems and institutions is called capacity development (UNISDR, 2009).

#### **2.1.5 Disaster risk governance**

It is every government’s moral obligation and responsibility to ensure the safety and welfare of its citizens. It must therefore work consciously to protect its people, infrastructure and valuable assets from disasters (van Niekerk, 2005). Disaster risk reduction and disaster risk management are two concepts linked to the fulfillment of this task and it is therefore crucial that the government takes responsibility and makes a commitment to implement these two concepts (van Niekerk, 2011).

Disaster risk reduction is defined as *“the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events”* (UNISDR, 2009). There are many different strategies to be used when reducing disaster risks in a society. Risk assessments, education to build a culture of safety and resilience, increased capacity for effective response and use of early warning system, are all examples of vital parts of disaster risk reduction.

Disaster risk management is defined as *“the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster”* (UNISDR, 2009). The term disaster risk management is sometimes confused with disaster risk reduction and in different parts of the world the both terms are used interchangeably (IOM, 2009). Even though the two terms are similar one should recognize that they have emerged from different contexts. Disaster risk management is mainly used by humanitarian actors while disaster risk reduction stems from developmental consideration (IOM, 2009). To make the interaction between disaster risk reduction and disaster risk management more clear, one can say that disaster risk reduction activities are focused more on a strategic level, while disaster risk management is the tactical and operational implementation of disaster risk reduction (van Niekerk, 2011).

There is now an international acknowledgment that different types of disasters pose a great threat to nations. Different policies and frameworks have been developed in order to support efforts to reduce disaster risks. The Hyogo Framework for Action (HFA), developed by the United Nations, was adopted in 2005 and provides guidance in how approaches can be made to reduce disaster risks. It emphasizes that in order for the process to be as effective as possible it must be integrated with policies and plans for sustainable development. The initiative by the international community to start producing policies like HFA can be seen as a good start in order to build well-functioning disaster risk governance around the world (van Niekerk, 2011).

One vital part for a successful and effective disaster management is that all stakeholders get involved. The government, non-governmental organizations (NGOs), local organizations, private sector and the civil society must all work together and be well coordinated in order to cope with disasters in the best possible way (Quarantelli, 1997; McConnell & Drennan, 2006; Perry & Lindell, 2003). There is no guarantee that the disaster risks are handled in an optimal way even though institutions of the government sphere is well organized or even if disaster risk management is of high priority. The allocation of responsibility must include more participants in order to manage and handle disaster risks efficiently, which is concluded in a Swedish government report (Regeringskansliet, 2007).

The process of disaster risk management in which the communities are actively engaged is called Community-Based Disaster Risk Management (CBDRM). The local residents of a community often know both the local opportunities and problems better than anyone else. It is further the residents own well-being and safety at stake so it is preferred that the information should be generated and presented in a way that they are familiar with (ADPC, 2004). CBDRM is particularly important to conduct in vulnerable communities like informal settlements where local conditions and needs vary greatly (DiMP, 2008). The involvement of the most vulnerable is paramount and it cannot be done without help from the government. It is therefore necessary that both the local and national governments are involved and supportive (ADPC, 2004).

In summary, there is a wide international consensus that governments, as the administrative entity, must focus on making both disaster risk reduction and disaster risk management a

priority in order to protect its people from disasters. However, the actual work cannot be done solely by the government. The most important emphasis in good governance for disaster risk is the realization that it is a shared responsibility between different actors in the society. The government, local organizations, civil society as well as the private sector must together aim to reduce disaster risks (van Niekerk, 2011).

## 2.2 South African Context

The section aims to provide necessary background knowledge about the South African context. Information about how disaster risk management is organized as well as information about informal settlements and their hazard profile is presented.

### 2.2.1 Disaster risk management in South Africa

Two main events acted as catalysts in the reforms to be made within the field of disaster management in South Africa in 1994: the severe floods that affected the historically disadvantaged area Cape Flats and the establishment of a new government the same year. Up until then focus had mainly been on post-disaster measures rather than a more holistic view including for example preventing and preparedness work towards disaster risks (van Niekerk, 2005).

The two mentioned catalysts together with international trends, which highlighted the importance of a more holistic disaster management, stimulated a consultative process which eventually resulted in the Green and White Paper on Disaster Management. South Africa had for the first time in history a national policy on how to manage disasters. These documents raised awareness for the need of disaster management integrated into development planning. A new approach where the most poor and vulnerable communities were prioritized in terms of disaster management had not been used before (van Niekerk, 2005).

The structure of disaster management in South Africa follows the same structure as the government with national, provincial and local levels. The national level can be described as the strategic level where the objective is to promote an integrated and coordinated system of disaster management for the country as a whole. The national disaster management centre (NDMC) is the principal functional unit of the national sphere. South Africa is further divided into nine provincial regions and each province has its own provincial disaster management centre (PDMC). The main objective at the provincial level is to create tactics and facilitate how the policies created at national level can be implemented. The local government is the most important sphere for an effective implementation of disaster management measures and it is here where the most of the operational activities will occur (van Niekerk, 2005).

There are 278 municipalities that make up the local sphere of government and they are divided into three categories: metropolitan, district and local municipalities. Metropolitan municipalities are classified as category “A” municipalities and South Africa has eight of them. There are 44 district municipalities classified as category “C” and 226 local municipalities, classified as category “B”. The district municipalities have often many local municipalities within its area of responsibility (GCIS, 2012).

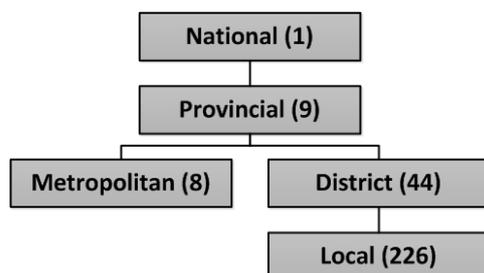


Figure 2.1. Government structure in South Africa.

For further and more extensive information about disaster risk management within different spheres of the South African government, see for example van Niekerk (2005).

*The Disaster Management Act (No. 57 of 2002)* and the *National Disaster Management Framework* (hereafter referred to as the Act and NDMF) are two important policy and planning documents within the field of disaster management in South Africa (DiMP, 2008).

The Act states that it provides for “*an integrated and co-ordinated disaster management policy that focuses on preventing or reducing the risks of disasters, mitigating the severity of disasters, emergency preparedness, rapid and effective response to disasters and post-disaster recovery*”. It further discusses expectations and requirements for the national, provincial and municipal disaster management centres. Active participation of relevant stakeholders such as the private sector, NGOs, technical experts, communities and traditional leaders is mentioned as an important part of the disaster risk management. It is therefore an obligation for the disaster management centres at all government spheres to provide a forum where relevant actors within the field can participate.

The NDMF guides the implementation of the Act and both documents should therefore ideally be used together. The NDMF recognizes and identifies a diversity of risks and disasters in South Africa and discusses the best measures to reduce the vulnerability towards them. The importance of learning and active participation in the international forum for disaster risk management is also stated in the document. It is suggested that the government on a national level establish links with international agencies, organizations and institutions such as:

- African Regional Disaster Risk Reduction Strategy
- International Federation of Red Cross and Red Crescent Societies (IFRCS)
- United Nations Disaster Management Training Programme (UNDMTP)
- United Nations International Strategy for Disaster Risk Reduction (UNISDR)
- World Health Organization (WHO)

NDMF states that this is necessary both to stay updated with international development within the field and in order to easier offer and receive help when needed.

### **2.2.2 Disaster risk management in Western Cape**

According to the Act, it is mandatory for each metropolitan and each district municipality to establish and implement a framework for disaster management in the municipality. Western Cape has therefore besides a provincial disaster management centre also six municipal disaster management centres (MDMC), since it exists one metropolitan and five district municipalities in the province (Western Cape Government, 2012). In bigger municipalities where distance is a factor, consideration must be given to the establishment of decentralized offices. This is the case for the disaster risk management centre in the city of Cape Town, which consists of one head office and four smaller area offices.

Most of the operational activities within the field of disaster management are on a local level and the duties for the MDMCs in Western Cape are therefore of vast importance. One of the main objectives for any MDMC is to focus on the most vulnerable communities in the municipality. Risk assessments as well as compiling disaster plans in order to ensure an effective and rapid response provides an important foundation for the MDMCs. The NDMF discusses the importance of creating public awareness in order to create a culture of risk avoidance. Disaster risk management education, training and research are mentioned as encouraged activities in order to support this. The importance of involving the community in the work within the field of disaster management is mentioned in several places in both the Act and the NDMF. For a full list of responsibilities for the MDMCs, see the Act and the NDMF.

### **2.2.3 Informal settlements in Western Cape**

In Western Cape, rapid migration and natural population growth has increased the number of informal settlements (DiMP, 2008). Overall the number is estimated to 528 in the province as a whole and 298 in Cape Town alone (HDA, 2012). Increasing urbanization and high levels of poverty are raising the demands for housing and the government has problems keeping up, despite different policies and delivery programs (Landman & Napier, 2010). This is especially true for metropolitan areas because of rural-urban migration. It should also be mentioned that the colonial and apartheid policies of racial segregation have had a very negative impact on the country in several ways. It left behind a very fragmented urban form with unequal access to jobs, basic amenities and public services (Turok, 2012).

Informal settlements are created through a process of unassisted self-help. Houses are often self-built by families using temporary building materials and are normally built on land that has not been approved for residential use; many informal settlements are therefore considered unauthorized initially, but this can change over time. Other characteristics are unhealthy high and uncontrolled population densities, lack of infrastructure and basic services, and a high number of inhabitants living in situations of poverty (DiMP, 2008; Napier, 2002).

A community leadership is present in the informal settlements and its main task is to negotiate with stakeholders involved in the community. Whenever residents living in the settlement need to get in contact with local authorities the community leaders might act as an intermediary. Being a community leader is strictly on a voluntary basis and no payment is provided. However it is in many cases seen as an honorary mission and the community leaders are in general respected within the community<sup>4</sup>.

In order to improve the situation for the many people living in informal settlements, different policies and programs have been put in place after 1994. This includes both the provision of low-cost government housing (formally named RDP housing after the Reconstruction and Development Program) and 'in situ' upgrading of informal settlements. Low-income households (earning less than R3500 per month) can qualify for a low-cost housing, which includes ownership of land and a small stand-alone house (30-40 m<sup>2</sup> on a 250 m<sup>2</sup> plot). Far from all applying is granted this subsidy (Landman & Napier, 2010). 'In situ' upgrading of informal settlement includes providing basic infrastructure and service to the households in a way that minimize disruption to resident's lives (Huchzermeyer, 2009). Whether this can be done or not, is dependent on various factors, including the location of the settlement, the land suitability and ownership. The upgrading of informal settlements is one of the government's high priority programs (Landman & Napier, 2010).

The changing housing landscape of Western Cape makes it harder to separate neighborhoods in terms of formal and informal. Many informal settlements have been acknowledged by the government and provided with some basic services, and many formal low-cost neighborhoods are nowadays home to informal dwellings referred to as backyard dwellings or 'backyarders' (Landman & Napier, 2010; DiMP, 2008).

### **2.2.4 Hazards in informal settlements**

Informal settlements are often located in marginalized, low-lying and environmentally fragile areas that are unsuitable for residential purposes, e.g. wetlands and floodplains (Turok, 2012). A wide range of hazards is present that poses threat to the inhabitants, including fires, floods, poor health, crime and severe weather events. In addition to this, informal settlements are also extremely vulnerable to many other hazards. Factors increasing the vulnerability are: high settlement density, poorly constructed dwellings, inadequate infrastructure and lack of basic service delivery. All combined, this makes informal settlements in the Western Cape extremely prone to disasters. Severe weather events, flooding and dwellings fires are known

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<sup>4</sup> Stephen van Rensburg, City of Cape Town DRMC (Head: Area North), meeting 2013-05-03.

to have caused disasters in Western Cape, and are together with environmental health risks regarded as priority risks in informal settlements (DiMP, 2008).

Dwelling fires constitute a serious disaster risk in Western Cape. These fires are most common in informal settlements, but also occur in formal neighborhoods when backyard dwellings catch on fire. In informal settlements with no or limited access to electricity, open flames and paraffin stoves are widely used as cooking, heating and lighting resources. These constitute ignition sources and increase the fire risk. So do high usage of illegal and overloaded electrical connections. Informal settlements can also suffer from rapid fire spread due to flammable building materials, high settlement density and accumulation of litter and debris, which can further fuel a fire. Settlement density also affects the number of possible ignition sources and limits the access for the fire brigade in informal settlements (DiMP, 2008).

Informal settlements are facing problems with environmental health risks. These risks often stem from lack of basic service delivery in the settlements as well as individual or group behavior that encourages unsanitary practices, littering and neglect of infrastructure. The lack of secure tenure and low incomes also discourage people from improving the safety of their homes and the sanitary conditions of their immediate surroundings. Standing grey water (e.g. around taps), overloaded and blocked sanitation systems, accumulation of solid waste and unsanitary practices are all examples of common environmental health risks in informal settlements. Untreated, these environmental health risks can cause contamination of the environment, increased number of disease-spreading flies and other vectors, health problems and even deaths (DiMP, 2008).

Informal settlements in Western Cape are also facing problems with floods. This can be explained by a combination of factors interacting: location in high-risk areas, limited stormwater drainage, inadequate dwelling design and flood/water exposure. Many informal settlements are located on wetlands and low-lying areas that normally flood following rainfalls. It is also difficult building adequate stormwater and drainage systems, in order to reduce flood risks, once a settlement has been established. Informal dwellings are also often embedded in the ground to be able to withstand strong winds, which makes them vulnerable to water seeping up from the ground (DiMP, 2008).

Crime is not a prioritized risk in informal settlement according to DiMP (2008), but it still causes problems for people living in informal settlements and low-cost housing. Fragile dwelling structures make burglary and a range of other personal crimes more possible and overcrowding together with lack of privacy can also lead to higher levels of abuse and assault. Places that are secluded, dark or otherwise hard to monitor can be considered high-risk areas for crime (Napier, 2002). This is the case in many informal settlements, which lack basic infrastructure development such as street lighting and well-maintained public areas. Response to crime by state officials is often limited in informal settlements because of limited accessibility and difficulties finding street addresses. There's also reluctance against victims in informal settlements to report crimes due to fear of retribution from both perpetrators and officials. This is likely to keep criminals to keep committing crime without fear of repercussions from law enforcement (Napier, 2002).

### 3 Methodology

The chapter presents information about the location for the field study and how the data was collected and analyzed.

#### 3.1 Location for field study

Cape Town is, with its rather large number of informal settlements, an appropriate location to conduct a study on how affected people perceive the responsibility for disasters. However, there are a number of factors that needs to be considered in the process of choosing a suitable community. The leadership structure within informal settlements makes it necessary to gain acceptance among the community leaders before conducting a field study. Another important consideration is to conduct the study in a community that does not suffer from research fatigue, a common problem in several of the informal settlements in Cape Town<sup>5</sup>. Local expertise as well as literature was therefore consulted before making any decisions. City of Cape Town Disaster Risk Management Centre (hereafter called DRMC) was able to assist in the decision-making process and was also able to set up a meeting with a community leader.

The community suggested by DRMC and later chosen for the study is Fisantekraal, one of 20 high-risk areas in Cape Town<sup>6</sup>. Fisantekraal is located about 40 kilometers north of Cape Town and consists of approximately 1500 low-cost government houses and 1440 informal houses<sup>7</sup>, so called shacks. For a brief overview of the community and the sectioning in a formal and informal part please consult Appendix A. Fisantekraal has also an unknown amount of backyard dwellers, occupying the backyards of houses in the formal part.

Fisantekraal is an interesting place to study because of the differences between the formal and informal part in terms of vulnerability towards disasters. As mentioned in *Chapter 2.2.4*, the high settlement density in many informal settlements limits the access for the fire brigade and this is true for the informal settlement in Fisantekraal as well. Only one road for vehicles exists and there are mainly narrow, sandy walking paths that are used to get around in the area. Shacks are poorly constructed and not very resilient towards severe weather events such as heavy rain and wind storms. No electricity is formally yet provided for the area, which leads to a high usage of illegal and often badly wired electrical connections. Public lightning has however recently been installed in order to prevent crime. Waste is accumulated due to lack of adequate garbage collection in some parts of the informal settlement. Another example of a common environmental health risk in the area is standing grey water around taps. The people in the informal settlement lack access to their own water and sanitation system, and toilets and water taps are therefore shared among families. The toilets are located in the outskirts of the informal settlement and up to five families share each facility. The lack of adequate stormwater and drainage systems causes problems with floods every winter and since the settlement is located on a natural slope it is mainly the lower part that gets affected. In short, it can be concluded that people in the informal settlement in Fisantekraal are more susceptible to fires, floods and environmental health risks like other informal settlements in Western Cape.

The planned formal part is overall less vulnerable towards hazards. The houses provided by the government are more stable and have access to water, sanitation and electricity services. Tar roads are available which make the access for the fire brigade easier but also makes the formal part more prone to traffic accidents. The lack of proper sidewalks is one contributing factor to why traffic accidents involving pedestrians occur. Photos of the formal part and informal settlement are presented in Appendix B.

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<sup>5</sup> Direct communication with Mark Shapiro, Disaster Management Consultant, meeting 2013-02-20.

<sup>6</sup> Direct communication with Stephen van Rensburg, City of Cape Town DRMC (Head: Area North), meeting 2013-03-04.

<sup>7</sup> Direct communication with Anton Terblanche, City of Cape Town Informal Settlement Management (Principle Field Officer), meeting 2013-03-13.

## 3.2 Method for data collection

Conducting a survey using a questionnaire is a useful method for collecting standardized data from a large number of people (DiMP, 2008). One advantage is that it can be used for statistical analysis and to make statements not only about the respondents but the whole population to a certain degree (Bernard, 2006). However, it lacks the possibility to gather detailed information on a topic to the same extent as in-depth interviews and it would be desirable to combine the two methods, but that is not possible due to the limited time available for the field study (DiMP, 2008).

Survey questionnaire data can be collected in a number of ways. In this case, face-to-face interviews with help of research assistants from the area were considered the best option. There are several advantages with this approach: the questionnaire can be used on people that otherwise would not be able to answer the questions, e.g. illiterates; questions not understood by the respondents can be explained; showing up with a research assistant give the project and the interviewers legitimacy. Overall, this is likely to lessen the number of non-respondents in the survey (Bernard, 2006).

### 3.2.1 Sampling strategy

It is possible that people's opinions on the studied topic might differ depending on various factors, such as where they live, what education they have, if they are male or female etc. In order to make sure that people within different subgroups of the population get represented in the sample, as well as making the data gathering process easier, a stratified sampling approach is considered the best option.

Stratified sampling divides the population into subgroups or strata from which a random sample can be drawn (Cochran, 1977). In Fisantekraal, the population is divided into two strata: one consisting of people living in low-cost government houses and one living in shacks in the informal settlement. Stratified sampling has two main advantages in this case compared to random sampling. When using random sampling it is always a chance that an important subgroup gets underrepresented in the sample, this is not the case if a stratified approach is used (Bernard, 2006). Stratified sampling also allows for different sampling strategies in the subgroups (Cochran, 1977). This is necessary in Fisantekraal where the same strategy cannot be used in the formal and informal part. In order to assure that no group gets underrepresented, the two strata are made of equal size. This is based on the knowledge that the proportions of shacks and low-cost government houses are approximately equal. Subgroups with disproportionate size would have called for a different sampling strategy, but this is not the case (Bernard, 2006).

Two different sampling procedures are used to make sure that random samples are drawn from the two subpopulations. Both parts are divided into blocks or clusters from which houses are selected randomly. The formal part, being more structured, is divided into 66 blocks with in average 20-30 houses using aerial photographs. All 66 blocks are selected during the first round to ensure a complete coverage of the area and another 44 out of the 66 blocks are randomly selected during the second round. In every block a random number between 1 and 30 is drawn, which indicates which house to choose. In the informal part, a preexisting sectioning from A to K, with approximately 130 houses in each<sup>8</sup>, is used; houses in all sections are drawn randomly by picking house numbers from a list with random numbers ranging from 1 to 130. For more detailed information about the sampling procedure please consult Appendix C.

In each house, the first person agreeing to participate is chosen as a respondent; if no one over the age of 18 is at home, a new house is chosen according to the previously mentioned procedure. Since a somewhat equal male/female ratio within the subgroups is desirable, male

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<sup>8</sup> Direct communication with Laetitia Ntondini, Community leader Fisantekraal, meeting 2013-03-04.

respondents are being chosen when possible, as female respondents are easier to come across. This cannot be regarded as a random sample, but the procedure is necessary given the limited time available for the field study.

To ensure that working people also are included in the sample, 50 percent of the interviews are conducted in the morning between 9am and 1pm and the other 50 percent during the afternoon between 2 and 6pm. The classification into morning/afternoon is done randomly. Responses are collected over a period of thirteen days, during weekdays and two Saturdays.

A decision not to include backyard dwellers is taken in an early stage of the field study. Obtaining an unbiased random sample from this subgroup is not possible with the limited time available and it is considered more feasible to focus on the two groups presented.

### **3.2.2 Design of questionnaire**

One of the most discussed questions about survey research is whether to use closed-ended or open-ended questions (Bernard, 2006). Closed-ended questions have a certain number of pre-determined answers and usually take the respondents less time to answer compared to open-ended questions. One disadvantage with closed-ended questions is that people cannot give a response other than the options they have been offered. Therefore, it is important to keep the alternatives exhaustive and mutually exclusive. Open-ended questions on the other hand offer more flexibility, but the information provided will be harder to analyze (Bernard, 2006).

The questionnaire consists of mostly closed-ended questions because they reduce the response time and therefore allows for more responses to be collected during the limited time available for the field study. There is no rule that prevents a questionnaire from containing both closed- and open-ended questions. In fact it is encouraged to use a few open-ended questions to break the monotony for the respondent (Bernard, 2006). Therefore, the questionnaire also consists of a couple of open-ended questions to encourage the respondents to express more about how they think and feel (Bernard, 2006).

Pretesting is of vital importance in any survey (Bernard, 2006). There are often problems and glitches in questionnaires, which cannot be identified beforehand no matter how well the questionnaire is prepared (Babbie, 2010). Before testing the questionnaire in the field it is inspected by experts within the field of disaster risk management. This is done in order to reduce the risk that vital information or response options are left out. A pretesting round that consists of three questionnaires is used for the field study. It would have been ideal with a more extensive pretesting round but it is not possible given the limited time.

Questions regarding responsibility for disasters account for the main part of the questionnaire. It does however also contain general background questions as well as questions about risk perception. This is considered necessary since the purpose of the thesis is to examine if the opinions differs between different subgroups of the population. With this information it is possible to divide the population into various subgroups based on for example age, gender, education level, housing type, affected/not affected etc. This can further be used to examine if these parameters have any impact on peoples opinions regarding responsibility for disasters.

Most of the questions used in the questionnaire have been obtained from Becker (2002). The questionnaire is also made available in Afrikaans and Xhosa to ensure that people with little or no knowledge in English can participate on equal terms. The questionnaire is presented in Appendix F.

### **3.2.3 The interviews**

When performing any type of interview it is important to make the respondent feel comfortable and make them aware as to why they are participating in the study. If the respondent is chosen from a random sample it is also important to inform them about how

they were chosen and why their cooperation is important to maintain representativeness (Bernard, 2006). The respondents are informed about why the study is important and how they were chosen before the interview is conducted.

A common problem for researchers dealing with interviews using a questionnaire is boredom and fatigue (Bernard, 2006). In order to maintain the same enthusiasm during all the interviews and avoid this problem, the interviewers take turns on conducting the interviews. In addition to this short breaks are taken whenever symptoms of fatigue appear on either the interviewer or the research assistant. In those cases where the respondents do not speak English the research assistant acts as a translator. It is necessary to use two different research assistants because of the different languages spoken in the formal and informal part. The fact that the questionnaires are also available in Xhosa and Afrikaans, which gives the respondents the option to read the questions in their native language, reduces the workload for the translator. At the same time it reassures that the translator phrases the questions correctly.

One of the biggest challenges conducting interviews in this type of setting is to keep respondents from getting influenced by a third party. To deal with this problem the interviews are performed inside the respondents' homes when possible to keep curious neighbors and friends from interfering. The interviews are then conducted one on one with clear instructions that solely responses from one person is needed.

### **3.3 Sample size and methods for statistical analysis**

A sample size of 200 respondents is chosen for the survey: 100 from the formal part and another 100 from the informal part. The sample size determines with what certainty (confidence level) and accuracy (confidence interval/margin of error) conclusions can be made about the population in Fisantekraal (Antonius, 2012). A larger sample is preferable but not considered possible given the limited time available for the field study. With 200 respondents, conclusions about the population can be made with 95 percent certainty and a margin of error of 7 percent (for calculations of sample size please consult Appendix D). In other words, if 40 percent of the respondents state that their favorite color is blue, this means that we can be 95 percent confident that 40 plus/minus 7 percent (33-47 percent) of the population have blue as their favorite color (Bernard, 2006).

One way to separate data is to look at what is being measured and whenever a variable is defined it is done at a certain level of measurement. The level of measurements on the variables is important to know since they help to decide which statistical method of analysis to use. There are four levels of measurement: nominal, ordinal, interval and ratio (Bernard, 2006).

The data collected in the survey are mostly variables on a nominal and ordinal level, although three variables of ratio level are present in the questionnaire. Both descriptive and inferential analysis is used to interpret the collected data. The descriptive analysis of data helps to describe and summarize the collected data, while the inferential analysis allows us to make generalizations about the population from where the sample is drawn. For the inferential analysis two different statistical tests are used: Chi-square and Mann-Whitney U. The Chi-square test is used on the nominal variables to see if the relation between or among variables is based on chance or if there is a statistical significant difference (Bernard, 2006). The Mann-Whitney U test is used to compare data between two different samples when the dependent variable is either on an ordinal or ratio level (Gravetter & Vallnau, 2009). In order to determine if the Chi-square and Mann-Whitney U tests return a statistical significant result a significance level of 5 percent is used. This means that if the tests return a p-value under 0,05 (5 percent) the test is considered to be statistically significant. For further information about the statistical tests consult Appendix D.

## 4 Analyzing the results

This chapter presents an analysis of the collected data. The analysis is divided into three parts: demographics, risk profile and responsibility. The first two parts form the basis of the analysis of the third part, which is the main focus of this report. Both the overall opinions of the people, the raw or unanalyzed findings, will be presented as well as analyzed data. The analysis is done in order to find differences and similarities between different subgroups within Fisantekraal. The analysis of data is limited to tests that show significant differences, interesting tendencies and tests where no significant differences can be found although they are expected.

Most discussions are preceded by a graph to make them easier to grasp, but this is not the case for all discussions. All statistical tests presented and discussed are marked with a square bracket, which indicates that more information about the test is presented in Appendix E. Graphs that are left out in the main report are instead presented in Appendix E and indicated with the test number within square brackets.

The sample that forms the basis of this section consist of 200 respondents which means, as previously discussed, that conclusions about the population can be made with 95 percent certainty and a margin of error of 7 percent.

### 4.1 Demographics

This section provides background information about people in Fisantekraal. The information forms the basis of the analysis and discussion of people's opinions regarding responsibility for disasters. The sample consists of 100 respondents from the formal part and 100 respondents from the informal part; 91 (45,5 percent) are male and 109 (54,5 percent) are female.

#### Q1: Age

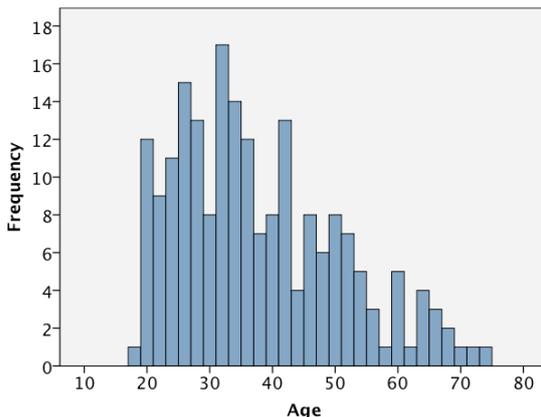


Figure 4.1. Age x All respondents.

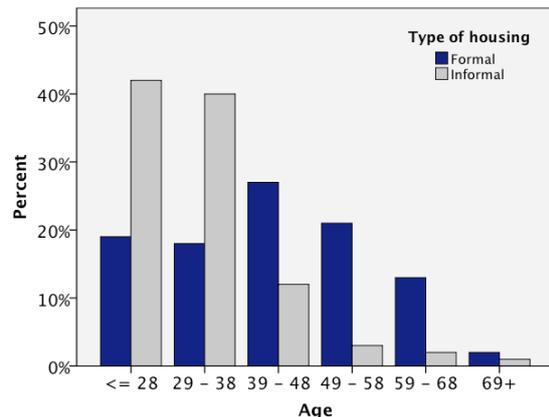


Figure 4.2. Age x Housing. MW-test, p-value: 0,000 [1].

The respondents sampled in the survey range from 18 to 73 years. The majority (62 percent) is below 40 years and only 10 percent are 55 years or older.

A significant difference between people in the formal and informal part exists. The informal part has a younger age structure; a vast majority are in their twenties or thirties, while the majority of people in the formal part are in their forties or older [1]. The difference in age structure is most likely linked to the urbanization in South Africa. The main reason for rural-urban migration in South Africa, as in other parts of the world, is that the economic growth is bigger in the cities (Turok, 2012). A majority of people living in the informal settlement is originally from rural parts of Eastern Cape and has come to Fisantekraal in hope of finding

employment. It is evident that employment opportunities first and foremost attract a younger part of the population and this could explain why the informal settlement has a younger age structure.

**Q2: What is the highest level of education you have completed?**

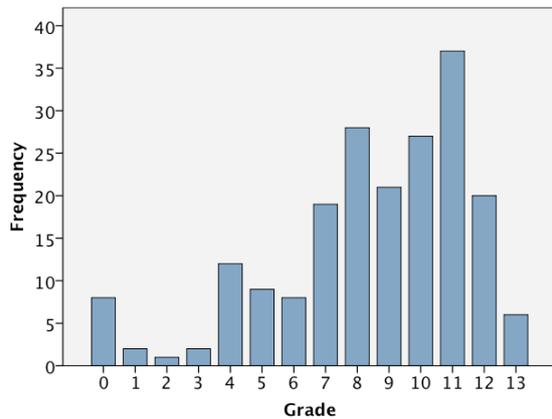


Figure 4.3. Education level x All respondents.

The highest level of education attained by the respondents ranges from no schooling (grade 0) to matric or higher level of education (grade 13). A majority of the people (55,5 percent) have completed grade 9 or higher.

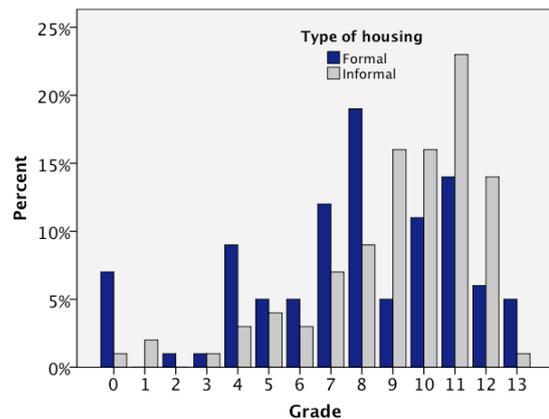


Figure 4.4. Education level x Housing. MW-test, p-value: 0,02 [2].

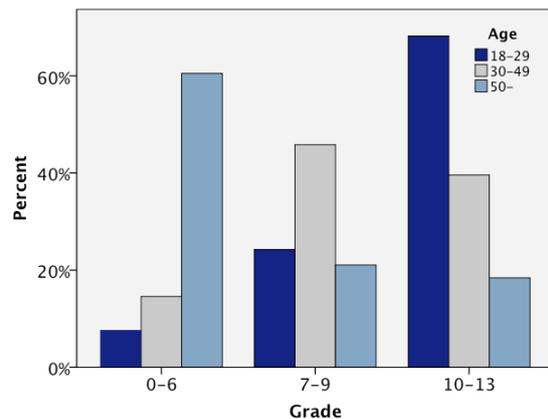


Figure 4.5. Education level x Age. Chi-square, p-value: 0,000 [3].

There is a significant difference in education level attained by people in the formal and informal part. People in the informal settlement have in general completed a higher level of education [2]. There is also a significant difference in education level between different age groups. Younger people have in general completed a higher level of education than older people [3]. The education level in South Africa depends heavily on when you went to school, which can explain the correlation. During the apartheid era, compulsory education was only fully implemented in regard to the white population (de Wet & Wolhunter, 2009). In other words it is more likely for the elderly black and coloured people to have a low level of education. Because there are more young people living in the informal settlement, it is natural that the level of education among the residents is higher there.

### Q3: What is your current employment status?

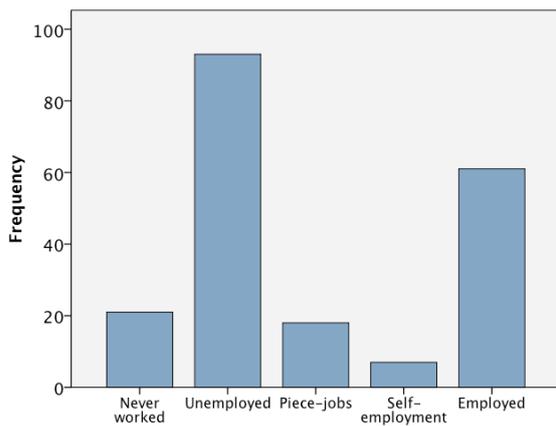


Figure 4.6. Employment status x All respondents.

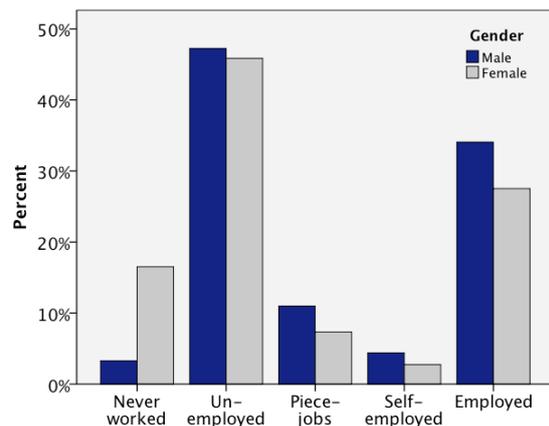


Figure 4.7. Employment status x Gender. Chi-square, p-value: 0,039 [5].

The unemployment rate among the respondents is high: 57 percent state that they are either unemployed or have never worked. This can be compared with the unemployment rate for the Western Cape, which was 21,6 percent in 2011 (Statistics South Africa, 2012). The fact that the unemployment rate is high in Fisantekraal is not very surprising since it is a low-income community and that migrating people settle down here in hope of finding employment.

The employment status is similar in the formal and informal part [4]. There is however a significant difference in terms of gender. Females have never worked to a greater extent than males [5].

### Q4: How long have you lived in this area?

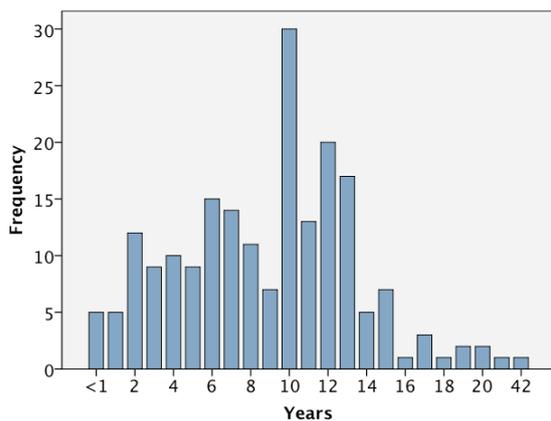


Figure 4.8. Years in Fisantekraal x All respondents.

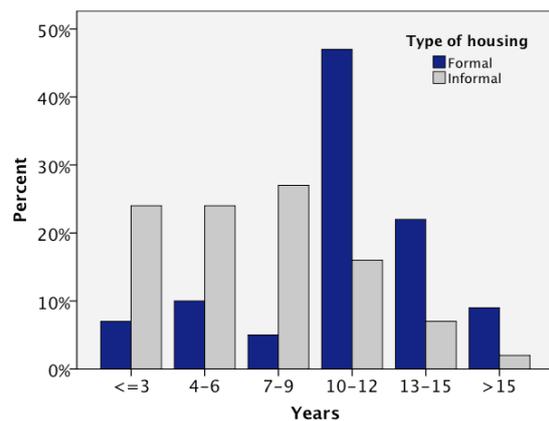
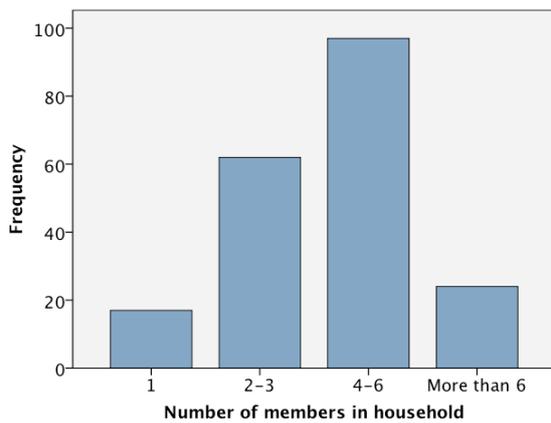


Figure 4.9. Years in Finsantekraal x Housing. Chi-square, p-value: 0,000 [6].

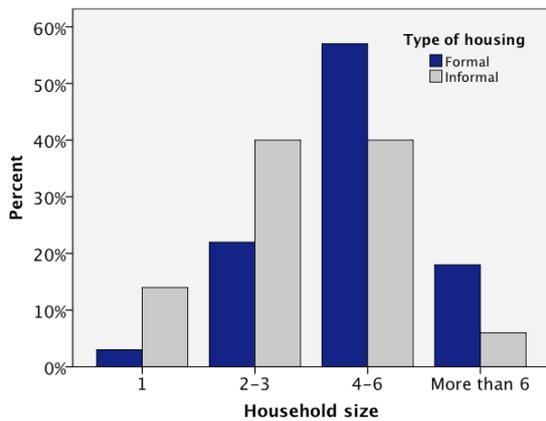
The time people have been living in the area ranges from less than a year up to 42 years. The distribution shows that very few have lived a short period of time (less than a year) and that the majority (51,5 percent) has lived more than 9 years in Fisantekraal. There is a significant difference in terms of housing type. People in the formal part have lived longer in Fisantekraal compared to people in the informal part [6].

**Q5: How many members live in the household including you?**

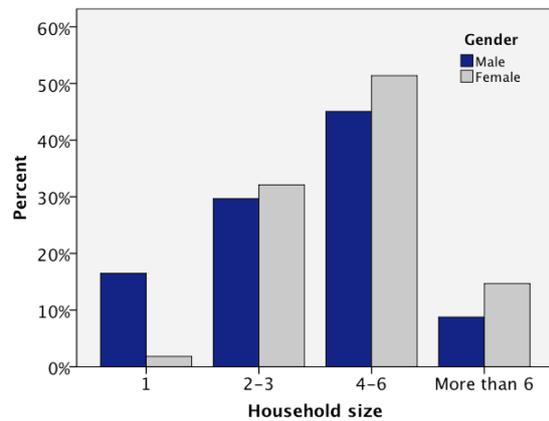


**Figure 4.10. Household size x All respondents.**

Most people live in households with 4-6 members. Only 8,5 percent live in one-person households, and 12 percent in households with more than 6 members.



**Figure 4.11. Household size x Housing.**  
Chi-square, p-value: 0,000 [7].



**Figure 4.12. Household size x Gender.**  
Chi-square, p-value: 0,002 [8].

There is a significant difference in household size between the formal and informal part. The formal part has a higher proportion of larger households [7]. This is not very surprising due to the fact that the houses in the informal part in most cases are smaller than the houses in the formal part. The informal part has the biggest proportion of one-person households.

There is also a significant difference in terms of gender [8]. Males are more likely to live alone and this is most common in the informal settlement. A reasonable explanation for this is that these young males have moved to Fisantekraal looking for employment. The fact that the shacks are smaller and more easily accessible makes the informal settlement a natural location to settle in for new arrivals (Turok, 2012).

## 4.2 Risk profile

Opinions regarding different hazards in the community are presented in this section. The information forms the basis of the analysis and discussion of people's opinion's regarding responsibility for disasters.

### Q6: How *afraid* are you of the following hazards in your community?

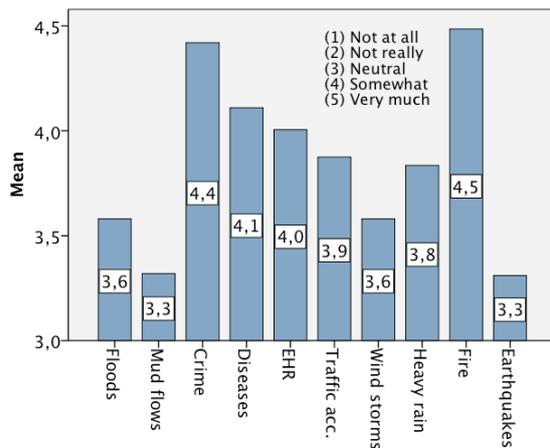


Figure 4.13. How afraid people are of different hazards in their community (mean value) x All respondents.

Overall, people are afraid rather than not afraid of hazards present in their community. The distribution of responses to each hazard is presented in Appendix E (figure E2-E11). Significant differences exist between people in the formal and informal part. People in the informal part are more afraid of fires and weather related hazards: floods, mud flows, wind storms and heavy rain [9-13], while people in the formal part are more afraid of traffic accidents [14]. Both parts have similar opinions regarding crime; both are somewhat to very much afraid [15]. This difference in risk perception is expected since the informal part is more vulnerable towards weather related hazards and fires. There is also a tendency among females to be more afraid of hazards than males, and the difference is significant in two cases: mud flows and traffic accidents [16,17].

### Q7: What are you most afraid of?

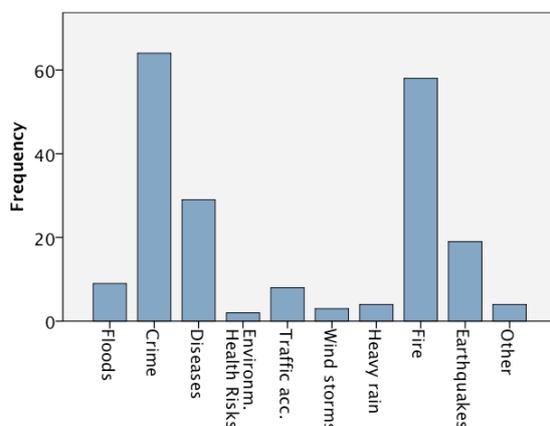


Figure 4.14. What are you most afraid of? x All respondents.

People are most afraid of crime, fire and diseases. In order to get reliable test results, floods, environmental health risks, traffic accidents, wind storms and heavy rain are recoded into a new group called *Other*. For a description of the criteria for reliable test results, please consult Appendix D.

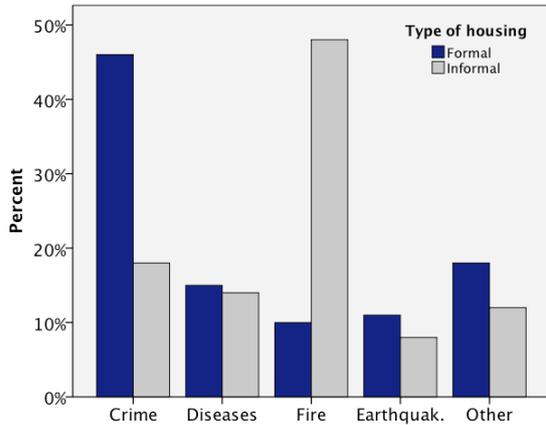


Figure 4.15. What are you most afraid of? x Housing. Chi-square, p-value: 0,000 [18].

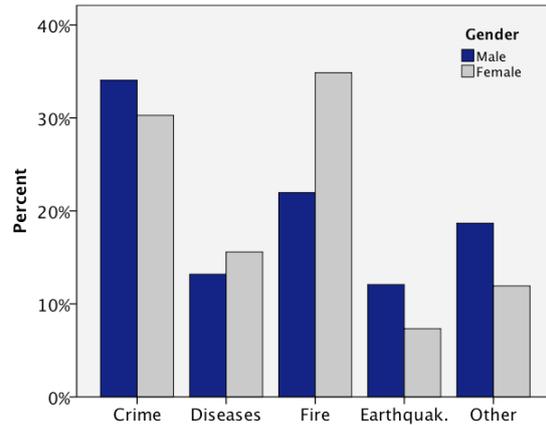


Figure 4.16. What are you most afraid of? x Gender. Chi-square, p-value: 0,203 [19].

A significant difference exists between people in the formal and informal part. People in the informal part are most afraid of fires, while people in the formal part are most afraid of crime [18].

There is no significant difference in terms of gender. There is however a tendency among females to be more afraid of fire [19]. Surprisingly, females are not more afraid of crime, which is reasonable to assume since South Africa has one of the highest incidences of violent crime against women and children in the world (UN-Habitat, 2008).

**Q8: Which of the above mentioned hazards do you think is most important to reduce?**

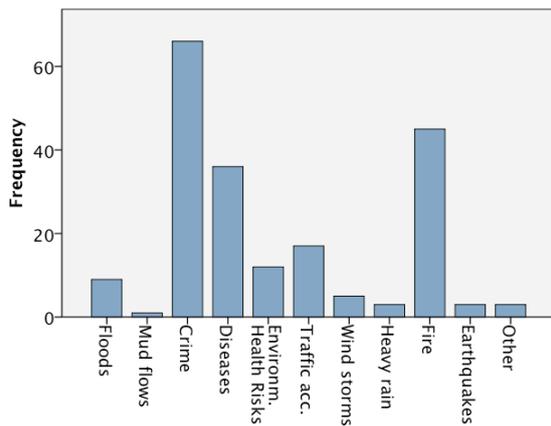


Figure 4.17. Most important to reduce x All respondents.

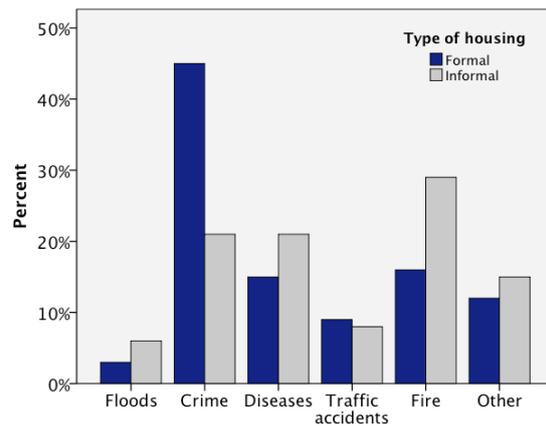
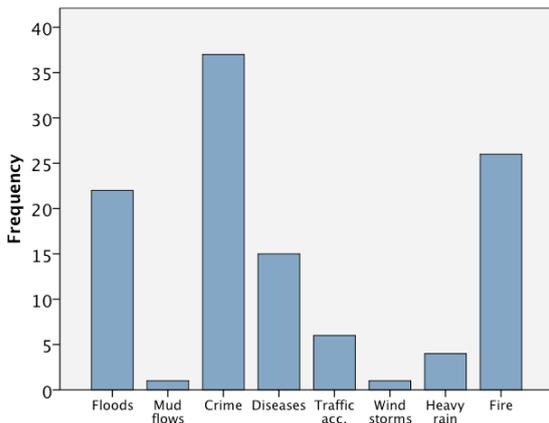


Figure 4.18. Most important to reduce? x Housing. Chi-square, p-value: 0,011 [20].

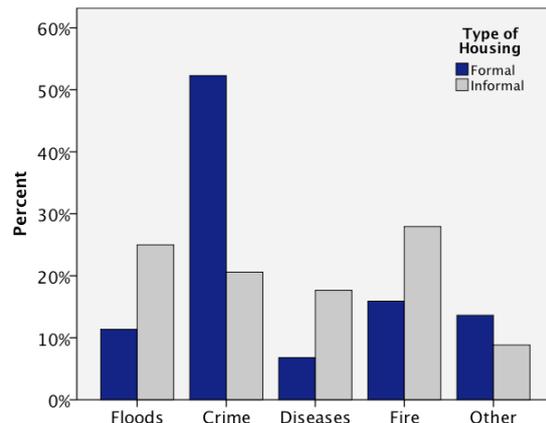
People are of the opinion that crime, fire and diseases are most important to reduce. In order to get reliable test results, mud flows, environmental health risks, wind storms, heavy rain and earthquakes are recoded into a new group called *Other*.

There is a significant difference between the formal and informal part. People in the informal part think that fire is most important to reduce, while people in the formal part think that crime is most important [20].

**Q9: Have you ever been affected by any of the above mentioned hazards while living in the community?**



**Figure 4.19. Type of hazard x All respondents.**



**Figure 4.20. Type of hazard x Housing. Chi-square, p-value: 0,004 [22].**

49,5 percent of the people in Fisantekraal have been affected by at least one hazard while living in the community. The informal part is slightly more affected; 55 percent of the people have been affected by at least one hazard, compared to 44 percent in the formal part. The difference is not significant (p-value: 0,12), but can be considered a strong tendency [21].

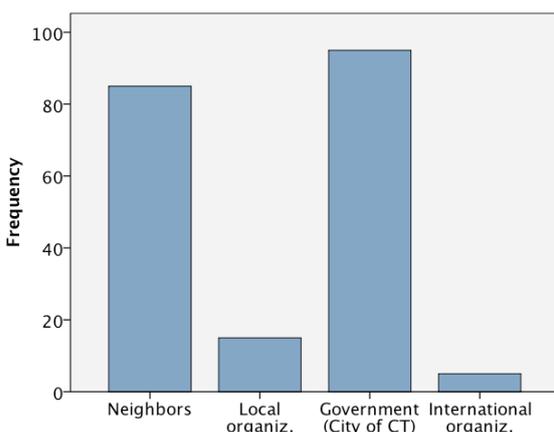
The most common hazard people are affected by is crime followed by fire, floods and diseases. In order to get reliable test results, mud flows, traffic accidents, wind storms and heavy rain are recoded into a new group called *Other*. A significant difference between people in the formal and informal part exists. People in the informal part are more affected by fire, floods and diseases, while people in the formal part are more affected by crime [22].

Interestingly, the respondents in the informal settlement tend to be affected by diseases to a large extent but not by environmental health risks at all. This is likely due to the fact that people have trouble separating environmental health risks from diseases, since the former often results in the latter (DiMP, 2008).

**4.3 Responsibility**

In this section, opinions about responsibility for disasters are presented and analyzed. The analysis is based on the following subgroups, identified in the two previous sections: housing type, gender, age, education level, employment status and affected/not affected by disasters.

**Q10: From whom would you receive the most important help in case of a disaster?**

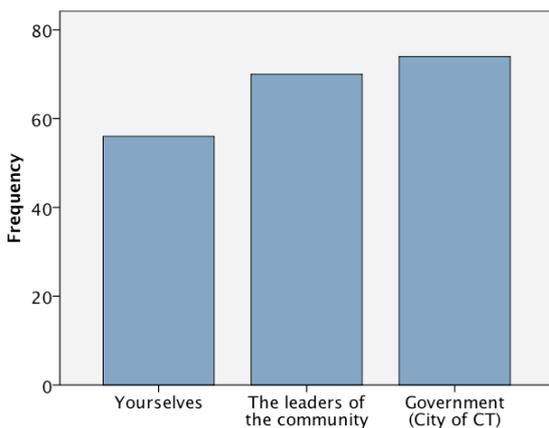


**Figure 4.21. From whom would you receive the most important help in case of a disaster x All respondents.**

People think that the government and neighbors will provide them with the most important help in case of a disaster. Local and international organizations are on the other hand mentioned very rarely. The distribution between neighbors and government is almost equal and the differences in responses could be explained by the fact that some people value quick assistance, which the government has problems to provide in Fisantekraal. Others might value more extensive help, which the government usually can provide and neighbors cannot.

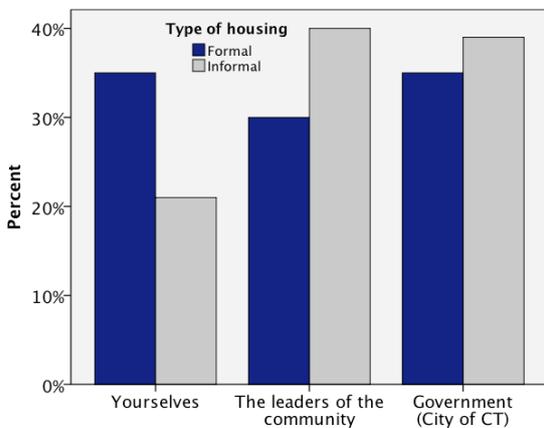
It is reasonable to expect that people in the informal part would say that neighbors provide them with the most important help, given the close proximity and the long response time for the government. However, no difference between people in the formal and informal part exists [23]. The analysis indicates that the opinions are fairly homogeneous among people of different subgroups.

**Q11: Who is most responsible for your safety in case of a disaster?**

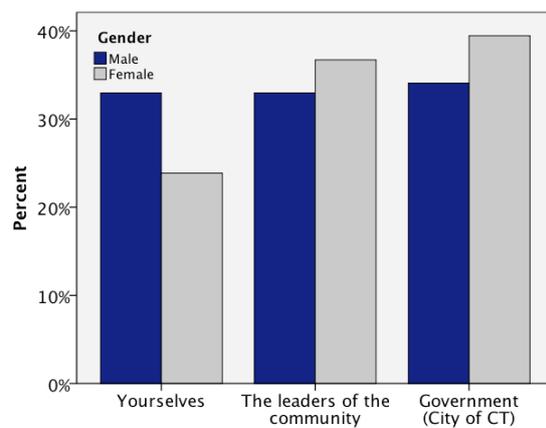


**Figure 4.22.** Who is most responsible for your safety in case of a disaster? x All respondents.

People have a heterogeneous opinion about who they think is most responsible for their safety in case of a disaster. The distribution of the answers is not far from equal between the government, the leaders of the community and yourselves.



**Figure 4.23.** Most responsible for your safety in case of a disaster x Housing. Chi-square, p-value: 0,076 [24].



**Figure 4.24.** Most responsible for your safety in case of a disaster x Gender. Chi-square, p-value: 0,358 [25].

There are no significant differences between people of different subgroups, but there are however a couple of interesting tendencies to mention. People in the formal and informal parts indicate to almost the same extent that the government is most responsible for their

safety in case of a disaster. A difference between the groups is however found when examining how often they state leaders of the community or yourselves. People from the informal part do to a higher extent consider the leaders of the community to be most responsible for their safety, as opposed to people in the formal part who to a greater degree indicate yourselves [24]. Males do to a higher extent consider themselves to be most responsible while females on the other hand to a higher degree consider the government and the community leaders to be most responsible for their safety in case of a disaster [25].

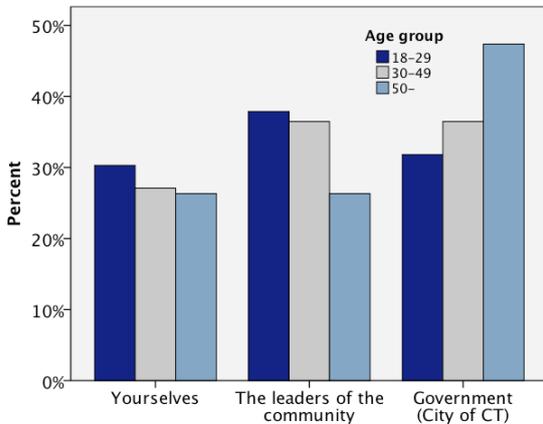


Figure 4.25. Most responsible for your safety in case of a disaster x Age. Chi-square, p-value: 0,589 [26].

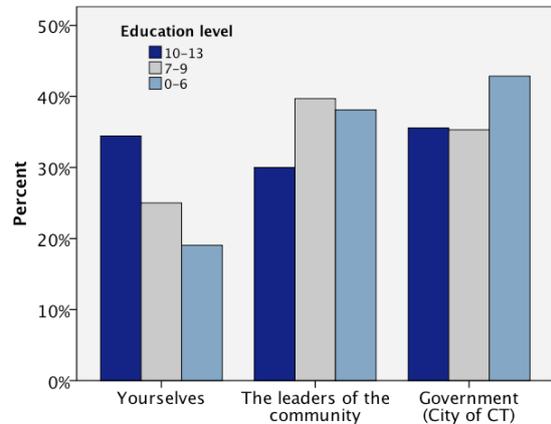


Figure 4.26. Most responsible for your safety in case of a disaster x Education level. Chi-square, p-value: 0,350 [27].

People over the age of 50 do to a greater extent than other age groups state the government as most responsible for their safety in case of a disaster [26]. People with low level of education are of the same opinion [27] as the elderly and this can be explained by the high correlation between age and level of education. As mentioned in *Chapter 4.1*, it is most likely older people who have a low level of education.

**Q12: Who is working hardest to make you safer towards disasters?**

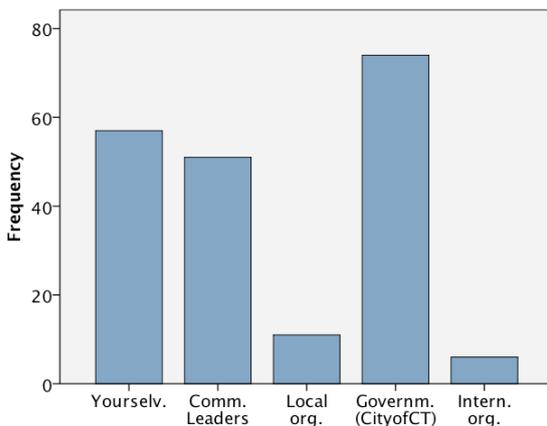


Figure 4.27. Who is working hardest to make you safer towards disasters? x 199 respondents.

People are of the opinion that the government, followed by yourselves and community leaders are the ones working hardest to make them safer towards disasters. Noticeable is that local and international organizations are mentioned very rarely. In order to make the statistical tests reliable and avoid the problem with an expected count that exceeds the limit, these two categories are recoded into a new parameter called *Local/Int Org.*

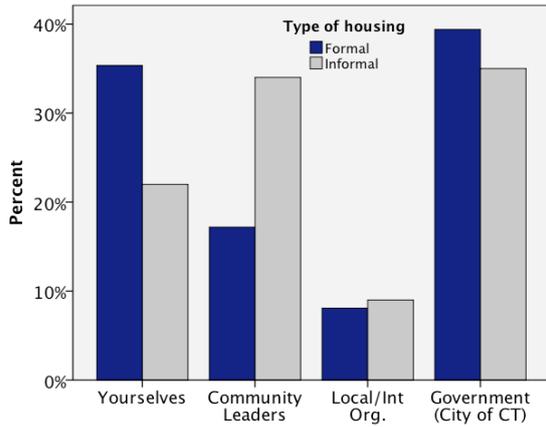


Figure 4.28. Working hardest to make you safer towards disasters? x Housing. Chi-square, p-value: 0,031 [28].

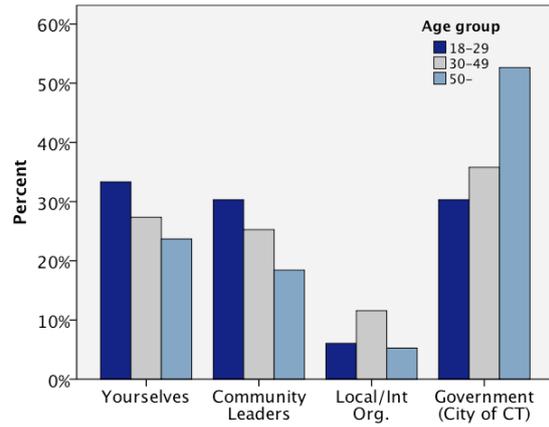


Figure 4.29. Working hardest to make you safer towards disasters? x Age. Chi-square, p-value: 0,274 [29].

A significant relationship between how opinions in this matter differ between people in the formal and informal part exists [28]. People in both parts consider the government to be working hardest to make them safer towards disasters. There is however a difference between how often yourselves and leaders of the community are indicated. People from the informal part state the leaders of the community to a much higher extent than people from the formal part, who instead state themselves to a greater extent.

No significant difference exists between different age groups. However, there is a tendency among people over the age of 50 to mention government to a greater extent than the other age groups [29].

**Q13: I think that people in Fisantekraal get the same amount of help as people living in other parts of Western Cape in case of a disaster.**

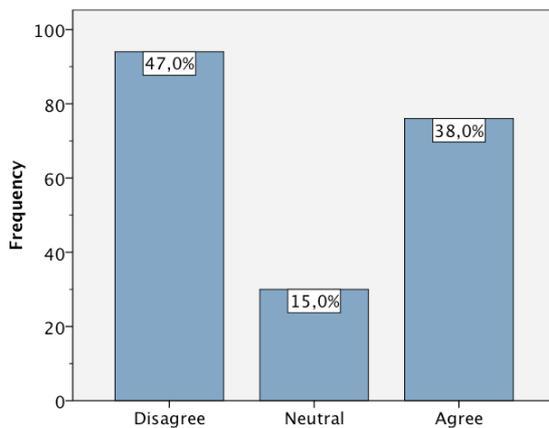
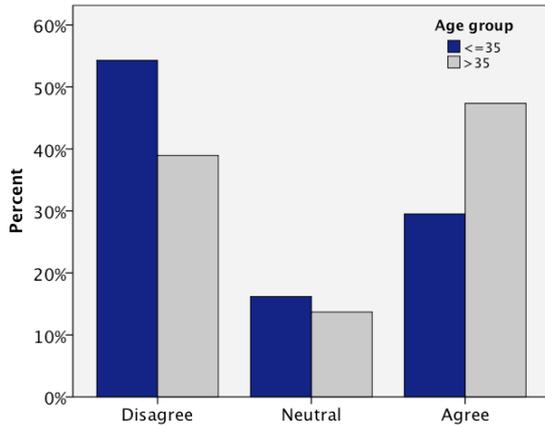
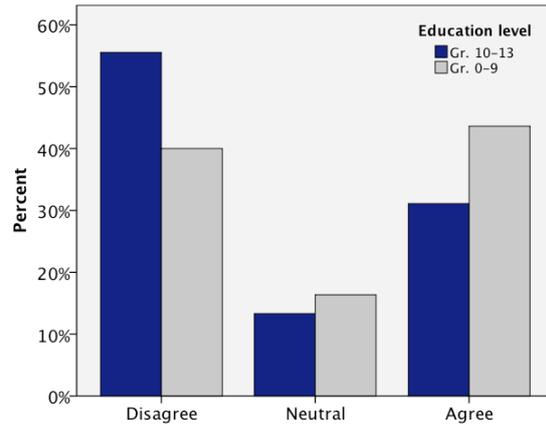


Figure 4.30. Same amount of help x All respondents.

Many people living in Fisantekraal are of the opinion that they do not get the same amount of help as people in other parts of the Western Cape in case of a disaster. It is reasonable to expect that the opinions in this matter would differ between people from the formal and informal part due to their difference in vulnerability towards disasters. This is however not the case and the opinions are remarkably similar [30].



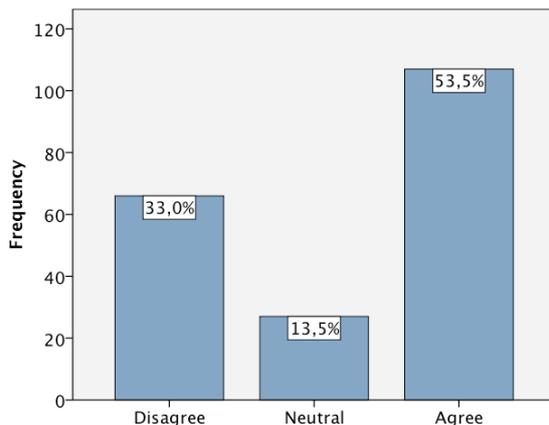
**Figure 4.31. Same amount of help x Age.**  
MW-test, p-value: 0,011 [31].



**Figure 4.32. Same amount of help x Education level.**  
MW-test, p-value: 0,031 [32].

Significant differences exist between people of different age and education level. People over the age of 35 agree with the statement to a higher extent than people under the age of 35. A majority of the young people instead disagrees with the statement [31]. A similar pattern exists in terms of education level. People with a low level of education (grade 0-9) agree to a higher extent, while a majority of people with a high level of education (grade 10-13) disagrees [32]. The correlation between age and level of education can, as previously discussed, explain these similarities.

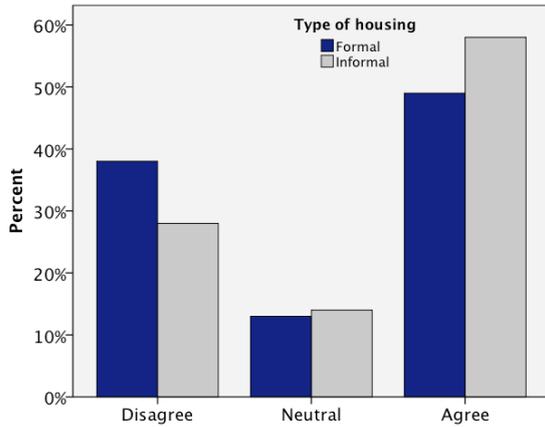
**Q14: I have high confidence in the authorities ability to keep me safe in case of a disaster.**



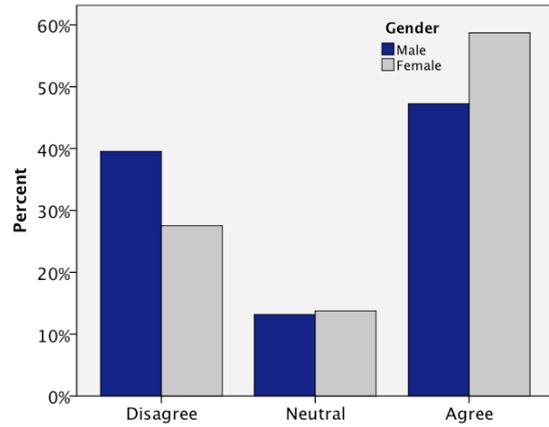
**Figure 4.33. High confidence x All respondents.**

A majority of the people have a high confidence in the authorities' ability to keep them safe in case of a disaster. High confidence among inhabitants is important in order to successfully be able to implement risk reducing strategies that requires participation of community members. Awareness campaigns and such activities should be easier to conduct and have better effect if the people have trust in the authorities<sup>9</sup>.

<sup>9</sup> Direct communication with Stephen van Rensburg, City of Cape Town DRMC (Head: Area North), 2013-05-03.

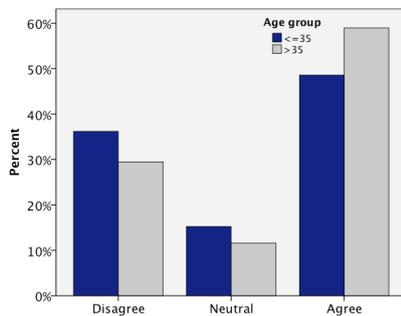


**Figure 4.34. High confidence x Housing.**  
MW-test, p-value: 0,147 [33].

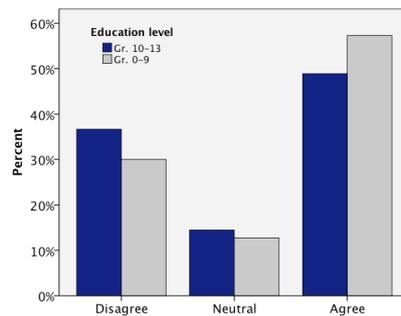


**Figure 4.35. High confidence x Gender.**  
MW-test, p-value: 0,072 [34].

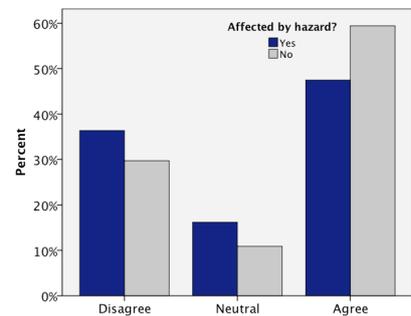
No significant differences exist between people of different subgroups, but people in the informal part and females tend to have higher confidence than people in the formal part and males [33, 34].



**Figure 4.36. High confidence x Age.**  
MW-test, p-value: 0,172 [35].



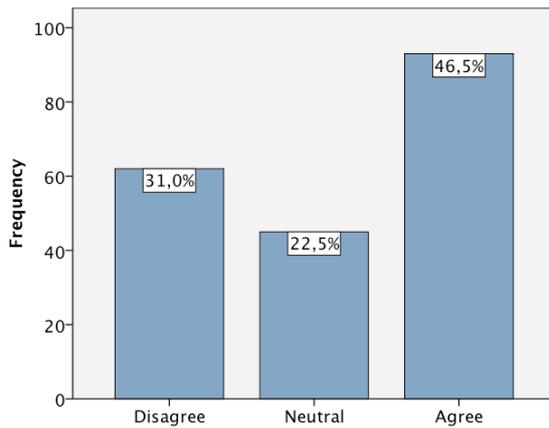
**Figure 4.37. High confidence x Education level.**  
MW-test, p-value: 0,239 [36].



**Figure 4.38. High confidence x Affected by hazard?**  
MW-test, p-value: 0,132 [37].

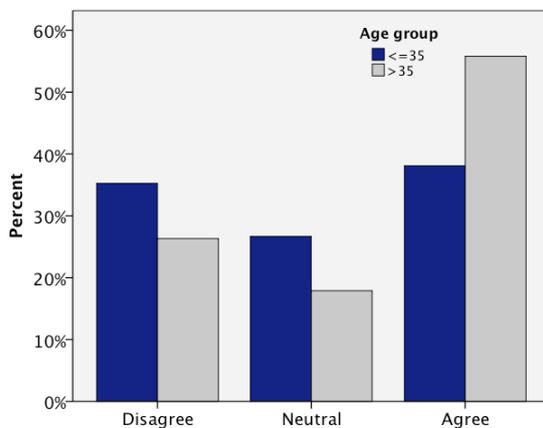
There is also a tendency among people over the age of 35 and people with a low level of education to have higher confidence in the authorities' ability to keep them safe compared to younger people (18-35 years old) and people with a high level of education [35, 36]. People who have been affected by a hazard while living in Fisantekraal tend to have a lower confidence in the authorities ability to keep them safe in case of a disaster compared with people who have not been affected [37].

**Q15: My influence in the decisions made in the community has a positive effect on how I survive in case of disasters.**

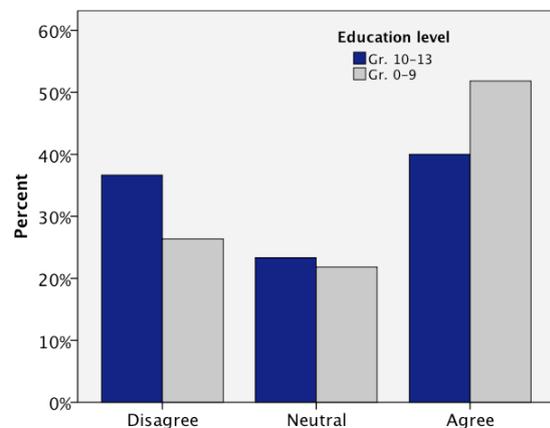


**Figure 4.39. Influence in the decisions... x All respondents.**

Many people agree with the statement. This is considered positive, since community involvement is considered to be of vital importance in order to create effective disaster risk reduction strategies, especially in vulnerable communities like Fisantekraal (DiMP, 2008).



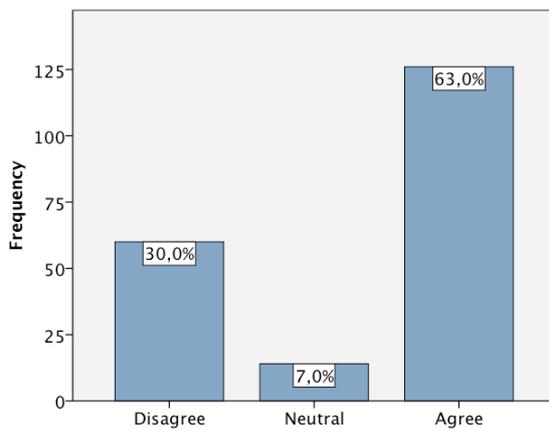
**Figure 4.40. Influence in the decisions... x Age.**  
MW-test, p-value: 0,025 [38].



**Figure 4.41. Influence in the decisions... x Education level.**  
MW-test, p-value: 0,073 [39].

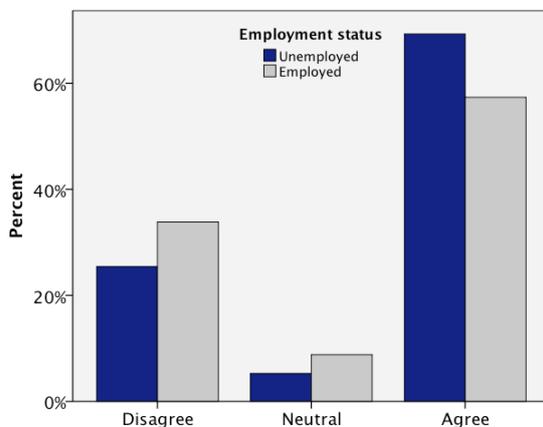
There is a significant difference in opinions between people of different age. People over the age of 35 agree to a higher extent than people under the age of 35 [38]. The same pattern is present in terms of education level [39].

**Q16: If I had the option I would move to a safer location within South Africa.**

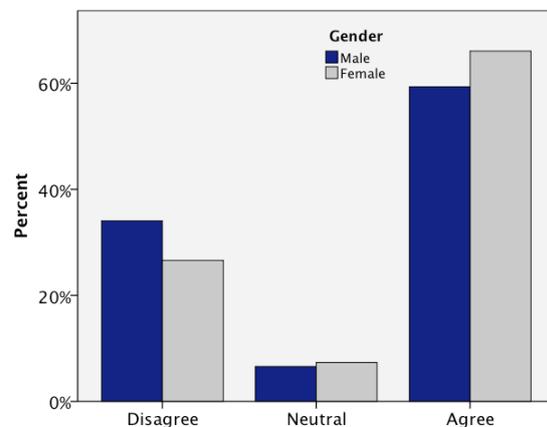


**Figure 4.42. Move to a safer location x All respondents.**

A majority of the people would move to a safer location within South Africa if they had the option. Somewhat surprising is that there is no difference between the formal and informal part [40]. It is reasonable to expect that people living in the informal part would be willing to move to a higher extent since they have more problems with hazards within their community.



**Figure 4.43. Move to a safer location x Employment status. MW-test, p-value: 0,123 [41].**



**Figure 4.44. Move to a safer location x Gender. MW-test, p-value: 0,286 [42].**

Although no significant differences between people of different subgroups exist there are a couple of interesting tendencies worth mentioning. The unemployed are in a higher degree willing to move [41]. This is probably not only based on safety reasons, a willingness to move is most certainly also connected with the hope of getting a permanent employment. Another tendency is that females seem to be more willing to move than males [42].

**Q17: What kind of help do you think is most important to get in case of a disaster?**

As one could expect evacuation help, financial support, assistance from the fire brigade and paramedics, food, shelter, clothing and provision of basic needs are all mentioned as help the respondents think is important to get in case of a disaster. Different types of building materials, in order to rebuild houses after disasters and also to better protect them against severe weather events, are particularly mentioned in the informal settlement. Many of the respondents are further dissatisfied with the response time of both the fire brigade and ambulances. Several respondents also think that the police do not patrol the community enough.

People often express opinions that the community needs to prepare itself to better cope with disasters and that people living in Fisantekraal must help each other to a greater extent. Some examples are:

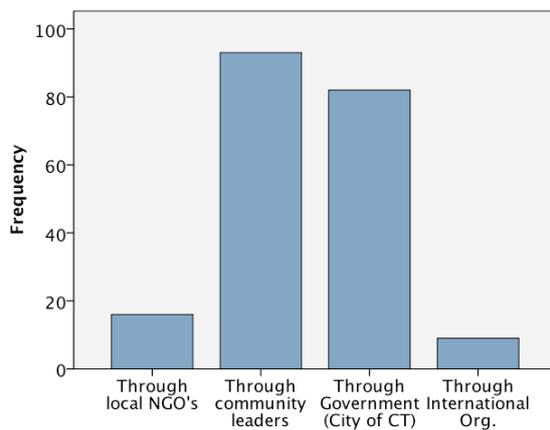
*“In case of a disaster we need people to talk with and a community center where people can turn to with their problems would be good”*

*“The people in the community should help each other, work together!”*

*“Educate us so we can take care of ourselves bru!”*

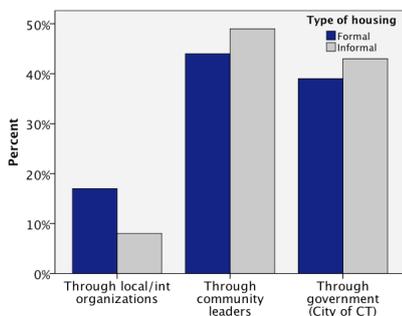
Thoughts like these, where involvement of the members in the community is considered to be important, are in line with theories about CBDRM and also with what the Act and the NDMF emphasizes.

**Q18: How should help be distributed to reach you in case of disaster?**

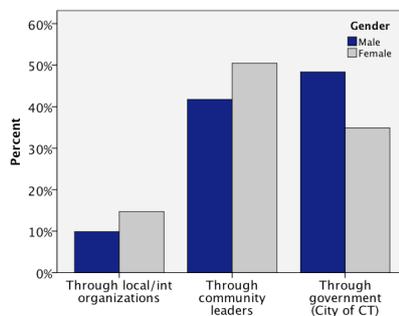


**Figure 4.45. How should help be distributed to reach you in case of a disaster? x All respondents.**

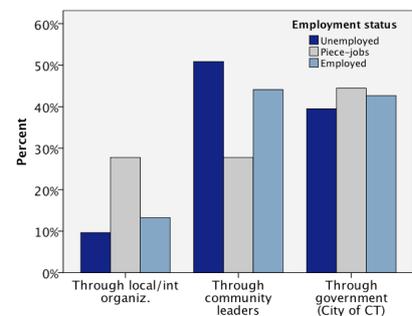
People are of the opinion that help should be distributed through either community leaders or through government. In order to get reliable test results international organizations and local NGOs are recoded into one group.



**Figure 4.46. Should be distributed? x Housing. Chi-square, p-value: 0,157 [43].**



**Figure 4.47. Should be distributed? x Gender. Chi-square, p-value: 0,141 [44].**



**Figure 4.48. Should be distributed? x Employment status. Chi-square, p-value: 0,184 [45].**

No significant differences in opinions between people of different subgroups exist. There are however some tendencies in terms of housing type, gender and employment status. People in the formal part answer local/international organizations more than people in the informal part [43]. There is also a tendency among females to think that help should be distributed through community leaders [44]. A possible explanation could be that females are more involved in

the community, while males are away working. The same could be an explanation for the tendency that can be seen among unemployed people to respond through community leaders more than employed [45].

**Q19: Who do you think should be most responsible for making you safer towards disasters?**

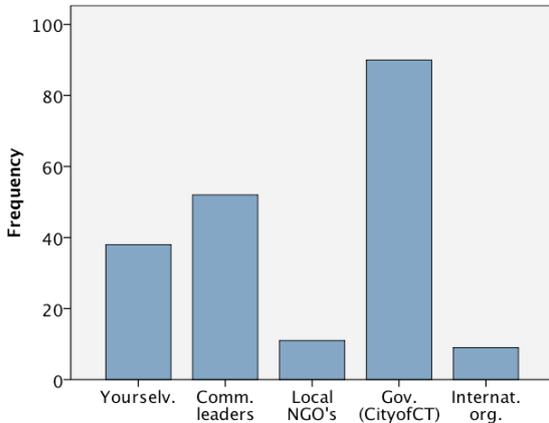


Figure 4.49. Should be most responsible x All respondents.

A large part of the people (45 percent) thinks that the government should be most responsible for making them safer towards disasters. International organizations and local NGOs are recoded into one group in order to get reliable test results.

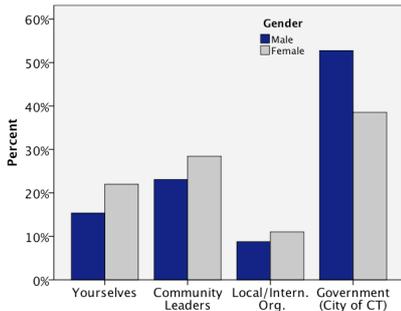


Figure 4.50. Should be most responsible? x Gender. Chi-square, p-value: 0,244 [46]

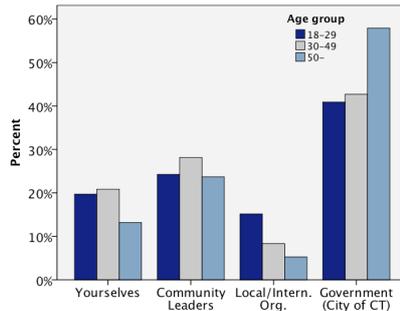


Figure 4.51. Should be most responsible? x Age. Chi-square, p-value: 0,443 [47].

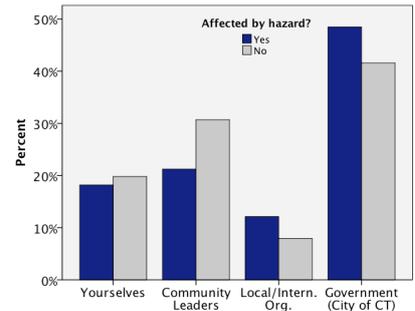
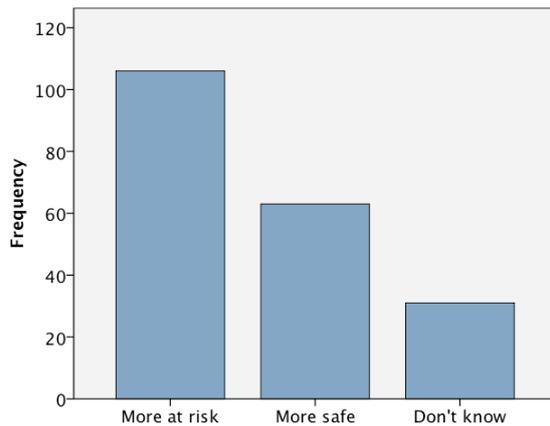


Figure 4.52. Should be most responsible? x Affected by. Chi-square, p-value: 0,361 [48].

No significant differences between people of different subgroups exist, but some tendencies are worth mentioning. Females tend to respond leaders of the community to a higher extent than males, while males tend to respond government to a higher extent than females [46]. People over the age of 50 also tend to respond government more frequently than other age groups [47]. People that have been affected by a hazard while living in Fisantekraal tend to respond government to a higher extent than people that have not been affected [48].

**Q20: In the future, do you think the community will be more safe or more at risk (dangerous) in terms of disasters? Why?**



**Figure 4.53. Do you think the community will be more safe or more at risk? x All respondents.**

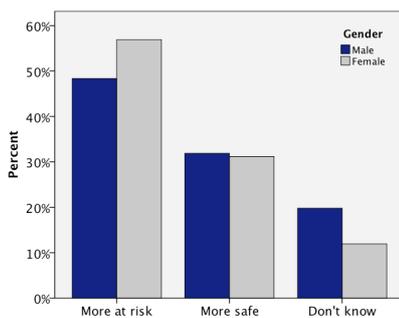
A majority of the people thinks that the community will be more at risk in terms of disasters in the future. People who state that the community is getting more at risk also have low confidence in the government and their ability to handle the situation with informal settlements. They also express concerns that the situation with people living in shacks is an unsustainable solution, which the government must solve in order for the community to better be able to cope with disasters in the future. Some examples of responses are:

*“The government doesn’t look after us”*

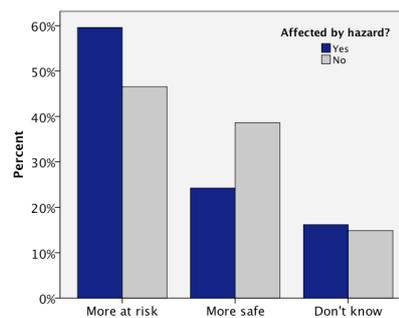
*“Housing problem must be solved to sort out the fire problem”*

*“There is a need of long term solutions! We need better houses, better service delivery, more prevention of fire and floods”*

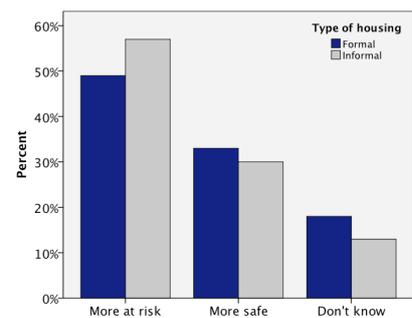
The opinions of the 31,5 percent of respondents who think that the community will be safer in the future when it comes to disasters should not be forgotten. These respondents are admitting that positive things are being done in the community. They mention what has already been done, e.g. installation of speed bumps in the formal part and installation of public lightning. These respondents also seem more aware of the forthcoming projects that are planned for the community. Removal of shacks (to an area nearby) in order to create access for electricity and better access for the fire brigade is a current project that apparently is making many respondents more hopeful about their future.



**Figure 4.54. The future? x Gender.**  
Chi-square, p-value: 0,264 [49].



**Figure 4.55. The future? x Affected by hazard?**  
Chi-square, p-value: 0,084 [50].



**Figure 4.56. The future? x Housing.**  
Chi-square, p-value: 0,46 [51].

There are no significant differences between subgroups, but a couple of interesting tendencies exist. Females do to a greater extent than males state that the community is getting more at risk in terms of disasters [49]. It is also found that people who already have been affected by a disaster while living in Fisantekraal are more skeptical about the future and think the community is getting more at risk to a higher extent than people who have not been affected [50]. As previously discussed, more people are living in the informal part who have been affected by a hazard and it is therefore natural that people in the informal part also to a greater extent than people in the formal part state that the community is getting more at risk in terms of disasters [51].

## 5 Discussion

In this chapter follows a discussion about the results from the study with the intention to answer the research question: What opinions do people in Fisantekraal express concerning responsibility for disasters in their community. The influence of potential biases on the results is also discussed.

### 5.1 Results

People in Fisantekraal are of the opinion that the responsibility for disasters is shared between the government, community leaders and civil society. International and local organizations are however not considered to be active in providing help to the same extent as the South African government aims for. The importance of involving NGOs is acknowledged by DRMCs area north office that conducts disaster risk management work in Fisantekraal. They have established contacts with five organizations (*Salvation army, Zanzaf, HDI, Red Cross, Mustadafin*) that are all willing to help with response and relief in case of a disaster<sup>10</sup>. This is however, as the results shows, not to a great extent known by the people living in Fisantekraal.

The fact that stronger community involvement can help to reduce disaster risks appears to be known in Fisantekraal. The opinion that it is important to involve the community leaders in the process is widely spread. By giving the community leaders a bigger responsibility it is possible to get a closer cooperation between the residents and local authorities, since they can act as an intermediary. Although the opinion of involving community leaders is general and shared between many people there is a difference in the opinions in this matter between people in the formal and informal part. People in the informal settlement are to a higher extent of the opinion that leaders of the community are important and working hard in order to make the community safer towards disasters. A possible explanation for this could be that community leaders are more active and visible in the informal settlement. The community leader is often consulted whenever a dispute or problem arises. This is more likely to happen in the informal settlement where people are facing many difficulties and live closer together.

People in Fisantekraal also consider themselves to play an important role in ensuring their own safety. Efforts from the government and other stakeholders are often not enough in the current situation; people feel that it takes the emergency services too long to respond to situations in the community and that they themselves often have to take matters into their own hands, at least initially. People in the formal part seem to feel more responsible than people in the informal. The reason might be that people in the formal part feel like most of the efforts from the community leaders and the government are invested in the informal part where the problems are considered to be biggest. In addition, the larger household size in the formal part might further lead to a bigger capacity to cope with problems, making them able to handle situations that smaller households cannot. Regardless, people do not seem to want to have such a large responsibility. Although it is not significant, people express opinions that the government should be more responsible in ensuring the safety, in favor of both themselves and the community leaders.

Except for the involvement of community leaders, no significant differences between the formal and informal part exist regarding responsibility for disasters. One could expect the differences in opinions to be bigger, considering that differences between the two parts have been observed in literature, during the field study and in the analysis of questions regarding risk perception. People in the informal part are more vulnerable towards hazards and also more affected by fire and weather related hazards, while the formal part is more affected by crime. Thus, it is reasonable to presume that people also would have different opinions in

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<sup>10</sup> Direct communication with Stephen van Rensburg, City of Cape Town DRMC (Head: Area North), 2013-05-03.

terms of responsibility for disasters in the community. Such differences are however hard to come across; people in the two parts do in most cases seem to share similar opinions.

Despite differences in vulnerability, people in the formal and informal part are still members of the same community and share the same mindset, which can explain the lack of differences. People in the formal part might have better houses, access to basic infrastructure and service, and differ in demographic variables such as age and education, but they are still poor and face many of the same challenges as people in the informal settlement. Another factor that might influence the similarities in opinions is the fact that people in the formal part to a great extent experience problems with crime. Even though they are less concerned about many of the hazards that affect the informal settlement (as seen in *Chapter 4.2 Risk profile*) they could still feel equally vulnerable towards disasters because of the high crime rate. Crime might not fall under the definition of a disaster, but for the people having to live in fear of it on a daily basis it can be considered a disaster and therefore influence their opinions in the matter. This could lead them to feel as vulnerable as people in the informal part.

Although significant differences are hard to come across the tendencies found in the analysis all indicate that the opinions differ between people of different age groups. Older people are to a higher extent than young people of the opinion that the government is most responsible, and that the government is working hardest in order to make the community safer towards disasters. One explanation for this could be that the elderly do not feel that they have enough capacity to cope with disasters themselves. They, therefore, need more help compared to young people who are of the opinion that they can manage the situation themselves to a greater extent. Older people do to a higher extent than young people also seem to have a higher trust in the authorities' ability to keep them safe. They are also of the opinion that Fisantekraal get the same amount of help as other parts of Western Cape. In general, it seems like the elderly are more satisfied with how disastrous events are handled and that they have higher confidence in the government.

The fact that the young people are not as established in the community as the elderly could be a reason to why they seem to be more critical. It might also be due to that older people have experienced how the South African society has improved the last decades and thus allowing them to compare the present with the past. Another possible explanation can be that the young people to a greater extent know that better places exist since they use the internet and travel more. The correlation between age and education level has been previously discussed and the fact that older and younger people in general have completed different level of education might influence the results. It could be argued that younger people who have completed a higher level of education are better trained in critical thinking and also have better knowledge about their rights which could partly explain their opinion. These explanations are however speculations and in order to explain the differences in depth it is necessary to conduct a more qualitative study.

The opinions about responsibility for disasters seem to differ between males and females. No significant differences exist, but there are some tendencies. These do not however indicate any clear patterns and some contradictions are present. Females do to a greater extent than males state that the community is getting more at risk, but they do at the same time have higher confidence in the authorities' ability to keep them safe in case of a disaster. Females also express opinions about the importance of involving community leaders in order to create a safer community, more so than males. Since these are only tendencies and not significant findings further research is needed before making any conclusions about this.

The attentive reader might have noticed that some of the variables discussed earlier have not been further analyzed in the context of opinions regarding responsibility for disasters. There are obviously reasons for this and one is that the variables did not provide enough information to be able to use it further in a constructive way. The idea of asking people how long they

have lived in Fisantekraal was initially intended to be used in order to examine whether people who have lived a short period in the area had different opinions compared to people who have lived in the area a long time. Since so few have lived a short period of time (only 2,5 percent less than a year) it was realized that this was not enough data in order to make reliable conclusions. Furthermore, some variables have only served as a base for the discussion, for example some of the questions regarding peoples risk perception. Although these serve as interesting background knowledge it was not possible to analyze the opinions using these as grouping variables.

## **5.2 Sources of errors**

Identified sources of errors that might have influenced the results are presented in this section.

### **Sampling bias**

The sampling strategy used might have introduced some biases. A reasonable conclusion is that the fact that the interviews could only be held during daytime (9am – 6pm) will influence the number of employed respondents. Another aspect to consider is that it was always the first person in the house agreeing to participate that was chosen as a respondent. As a result, there is a chance that shy and inconspicuous people are underrepresented in the sample. It should also be mentioned that almost no problem with non-respondents was present during the survey. Less than 10 people declined to participate and in those cases it was because they had other commitments planned, e.g. on their way to work.

### **Interviewer bias**

Another factor that could have influenced the results is the use of research assistants. The fact that it was mostly Afrikaans speaking people in the formal part while people in the informal settlement in general spoke Xhosa made it necessary to use two different research assistants. This is of course not optimal since they might conduct the interviews in different ways, for example using different emphasis on words when stating the questions. In order to counteract this problem it was considered important to try to make the research assistant aware of how to conduct interviews without interfering with the respondent. Another measure taken in order to reduce the interviewer bias was to translate the questionnaire into both Afrikaans and Xhosa, which gives the respondents the option to read the questions in their native language. No back translation into English was done, but well-renowned interpreters were used in order to assure the correctness of the translation. In the cases where the respondent was illiterate the research assistant acted as a translator and it is evident that this decreases the control of the performed interviews. This is however not considered to have influenced results since the translated questionnaire assures that the questions are phrased correctly.

### **Misinterpretations**

It is possible that a bias caused by misunderstandings of the questions have affected the findings to some extent. The questionnaire contains words that can be difficult for some respondents to understand, for example disaster, which might make it difficult for the respondents to fully understand the question. In order to minimize the bias related to misunderstandings, the term disaster was always discussed and explained briefly before the interviews. An observation of correlation between level of education and how well the respondents were able to understand the questions was made. A respondent with a high level of education tends to understand the questions to a greater extent and it is easier to reason with them.

Although a pretesting round was conducted in order to identify any difficulties, two questions were later rephrased:

- Question 13 was originally phrased: The place where I live influences my chances of receiving help in case of a disaster. This was difficult for the respondents to understand

and the meaning of the question had to be explained by the interviewers. It was therefore decided to rephrase the question after 50 interviews.

- Question 17 was originally phrased: What kind of help do you think is most important to get in case of the following disasters: fire/flood/environmental health risks. It was hard for the respondents to distinguish between what help they wanted depending on the type of hazard. The question was therefore rephrased after 10 interviews.

Both of these changes are however not considered to have biased the findings due to the fact that it was possible to discuss and explain the questions to the respondents.

### **Methodological considerations**

There are many different aspects to consider when choosing methodology and this has already been discussed in *Chapter 3.2*. It should however be briefly mentioned how the choice of making a quantitative rather than a qualitative study have affected the findings of the study. Firstly, a quantitative study does not, as opposed to a qualitative study, gain understanding of underlying reasons about the respondents' opinions. The questionnaire contains two open-ended questions of a more qualitative character. It is evident that the information collected from them has been a great help to gain an understanding about reasons for the respondents' opinions. Both the collection and the analysis of data related to these two questions did however take a lot of time. Some of the results and relationships discussed earlier are hard to explain and a further qualitative analysis would have been interesting to conduct related to these complex findings.

## **6 Conclusions**

So, what opinions do people in Fisantekraal express concerning responsibility for disasters within their community?

### **Shared responsibility**

People in Fisantekraal do not consider the responsibility for disasters to be shared between different actors and stakeholders to the same extent as stated in the South African National Disaster Management Framework. Overall, people consider the responsibility to be shared between the government, community leaders and civil society. Local and international organizations are not considered to be active in the disaster risk management process.

### **Community involvement**

People express opinions about the importance of involving the community leaders in the disaster risk management process. This is widely shared among the community as whole, but people in the informal settlement express these opinions more clearly.

### **Government – bigger responsibility**

People express opinions that the government needs to take a bigger responsibility for preventing and managing disaster risks in the community. People are discontent with the high amount of responsibility they themselves have to take in the current situation.

### **Formal part and informal settlement – similar opinions**

People in the two parts do in most cases seem to share similar opinions about responsibility for disasters. Differences in vulnerability and living conditions in the two parts do not seem to affect the people's opinions to any greater extent.

### **Differences between people of different ages and education levels**

People of different ages do not share the same opinions about responsibility for disasters. Older people have a higher confidence in the government and are more satisfied with how disastrous events are handled. Young people do on the other hand not have as high confidence and express more critique about how the situation is dealt with. People with a low level of education generally share the same opinions as the elderly people. This is explained by the correlation between age and education level that exists in Fisantekraal.

## **6.1 Future research**

Suggestions for future research have been identified during the thesis work and are presented below:

- Conduct similar studies in other low-income communities in South Africa and around the world to examine if similar opinions are expressed in other vulnerable communities.
- Do a comparative study between a high-income and low-income community to examine if bigger differences, in for example socio-economic status, leads to larger differences in opinions regarding responsibility for disasters among people.
- Conduct a qualitative study in Fisantekraal to obtain a deeper understanding of why people express the opinions they do. What are the underlying reasons for the similar opinions or lack of differences?



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## Appendix B – Photos

This section provides photos of the formal and informal part of Fisantekraal taken during the field study. The purpose is to provide a better understanding of the situation in Fisantekraal and to highlight differences between the two parts.

### Informal settlement



Figure B1. Part of the informal settlement seen from uphill.



Figure B2. Poorly constructed dwellings.



Figure B3. Accumulation of waste next to shacks.



Figure B4. Toilets.



Figure B5. Narrow walking paths and inappropriate usage of electricity cables.



Figure B6. Accumulation of water after brief rainfall.



Figure B7. Standing grey water.

**Formal part**



**Figure B8. Formally planned with proper roads and infrastructure.**



**Figure B9. Low-cost government housing.**



**Figure B10. Streets lack proper sidewalks.**



**Figure B11. Backyard shacks.**

## **Appendix C – Sampling procedure**

This appendix provides more detailed information about the sampling procedure used in the formal and informal part.

### **Formal part**

Contacts with people at the Informal Settlement Management were established in the preparation phase, in order to try and obtain a detailed list over the houses in the formal part. This would have allowed for a random sample based on house numbers, but no such list could be obtained. Instead an aerial photograph, made available by the DRMC, was used to divide the area into 66 parts of approximately equal size. Slight alterations were made to the already existing block structure (see aerial photograph in Appendix A). One (1) house was selected in each of the 66 blocks to ensure a complete coverage of the area. Afterwards 44 blocks were randomly selected for a second round. Lists with random numbers between 1-30 was generated and used to select houses randomly within each block. This was done by counting houses starting from a randomly chosen corner of the block and then selecting the house corresponding to the number on the list. The procedure was repeated until a house with a respondent over the age of 18 was found. The selection of respondents cannot be labeled random; no dice or random numbers were used, instead the first person that happened to open the door at the time of the visit was chosen. This procedure enhances the chance of picking an old or unemployed person, especially if the survey is conducted in the middle of the day. To reduce this risk, responses were also collected during the afternoons. This was done by randomly dividing the 100 blocks into a morning (9am-1pm) and an afternoon group (2pm-6pm). It would have been desirable to stay later than 6pm, but that was strongly advised against by the community leader due to safety reasons.

### **Informal settlement**

The sampling procedure used in the informal settlement is somewhat different. No actual list of house numbers could be obtained for this area either, but information from the community leader as well as the Informal Settlement Management, informed about a sectioning from A to K with about 130 houses in each. Every house was marked with section and number, with the exception of a few houses. A list with random numbers ranging from 1 to 130 was generated and used to randomly select 9 houses in every section (with the exception of 10 in section C). Half of the houses were visited during morning and half during the afternoon. The houses were located with help of the research assistant who had good local knowledge. Respondents were chosen according to the same procedure as in the formal part; the first person over the age of 18, living in the house was selected as a respondent.

### **Backyard dwellers**

At the initial preparation phase, it was decided to try and sample backyard dwellers living in the backyards of the formal houses that were randomly chosen. The idea was dropped during the pretesting round due to a lot of difficulties associated with it. It proved to be very time consuming and almost impossible to sample backyarders in a way that would produce unbiased responses. In some cases people tried to hide that they had people living in the backyard and in other cases the backyard shack was only an extension of the formal house used by family members. It was decided that the limited time was better spent on trying to collect unbiased data from the two other subgroups. Family members living in the backyard also called for caution when sampling people for the formal subgroup. To make sure only people living in the formal house was chosen as respondents, the person was asking whether he/she lived in the formal house or not.



## Appendix D – Sample size and methods for statistical analysis

This appendix presents more information about the sample size and the statistical test methods.

### Sample size

The sample size needed for a given confidence level and confidence interval can be calculated with:

$$n = \frac{z^2 \cdot P(1 - P)}{CI^2}$$

where z is the area under the normal curve that corresponds to the chosen confidence level (for 95 percent confidence level z is 1,96), P is set to 0.5 in order to maximize the size of the sample for any given confidence interval or confidence level and CI is the confidence interval (Bernard, 2006).

The correlation between sample size and confidence interval is not linear. With a fix confidence level of 95 percent, calculations show that in order to lower the confidence interval from 7 to 5 percent an increase in sample size from 196 to 386 is necessary. Although a 5 percent confidence interval is preferable it is not considered possible with the time available for the field study.

### Methods for statistical analysis

The statistical analysis has been conducted using IBM SPSS Statistics (version 21). A complete codebook including descriptions of the variable, measurement level and values is presented in Appendix E. Two different statistical test methods, Chi-square and Mann-Whitney U, have been used and these are explained below.

### Chi-square

Chi-square is used to test if a statistically significant difference exists between two variables with nominal measurement levels, i.e. it tests whether or not there is a statistical correlation between two variables (Wahlgren, 2012). In other words, the Chi-square test tells you whether or not a relation exist between variables and it tells you the probability that the relation is the result of chance (Bernard, 2006). A difference is significant if the test returns a p-value less than 0,05 ( $p < 0,05$ ) and the result can be considered reliable if the following conditions are fulfilled: 1) The expected count under 5 is less than 20 percent 2) No expected count is less than 1 (Wahlgren, 2012). The figure below presents the output from a reliable Chi-square test that indicates a statistical difference between variables. The p-value is indicated in A under Asymp. Sig. (2-sided) and the expected count in B.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,084 <sup>a</sup>	4	,039
Likelihood Ratio	11,175	4	,025
Linear-by-Linear Association	3,651	1	,056
N of Valid Cases	200		

<sup>B</sup> a. 2 cells (20,0%) have expected count less than 5. The minimum expected count is 3,19.

Figure D1. An example of a reliable and statistically significant Chi-square test.

### Mann-Whitney U

The Mann-Whitney U test is used when two independent samples should be compared and to evaluate if there is a difference between the samples. The basic requirement for this type of test is that the dependent variable could be ranked and it is therefore used on the variables with ordinal and ratio levels in the questionnaire. The independent variable must consist of categorical variables, e.g. gender, and the test does then combine the independent and dependent variable to conclude whether one group has a higher mean rank than the other. In order to be able to decide if the difference is a result of chance or if it is a statistically significant difference between the groups the significance level (p-value) is evaluated. A significance level of 0,05 is used which means that a p-value less than 0,05 conclude that the difference between the groups is statistically significant and not a result of chance.

Whether or not there is a difference between how afraid the respondents living in the formal and informal part are for floods is tested in the example below. As seen, the mean rank is higher in the informal part and since the p-value is 0,000 which is less than 0,05 this difference is proven to be statistically significant.

Type of housing	N	Mean Rank	Sum of Ranks
Floods Formal	100	83,63	8362,50
Informal	100	117,38	11737,50
Total	200		

	Floods
Mann-Whitney U	3312,500
Wilcoxon W	8362,500
Z	-4,311
Asymp. Sig. (2-tailed)	,000

a. Grouping Variable: Type of housing

Figure D2. Example of output windows from a statistically significant Mann Whitney U test.

## Appendix E – Statistical test results

This appendix presents information about the results from the statistical tests presented in *Chapter 4 Analyzing the results*.

### Mann-Whitney

The table below presents results from Mann-Whitney tests.

#	Test variable	Grouping Variable	Mean rank		Mann-Whitney U	P-value Asymp. Sig. (2-tailed)
1	Age (Q1_Age1)	Housing	F: 122,87	I: 78,13	2763,0	0,000
2	Education level (Q2)	Housing	F: 87,74	I: 113,26	3724,0	0,02
9	Q6.1 Floods	Housing	F: 83,63	I: 117,38	3312,5	0,000
10	Q6.2 Mud flows	Housing	F: 89,09	I: 111,92	3858,5	0,004
11	Q6.7 Wind storms	Housing	F: 82,50	I: 118,50	3200,0	0,000
12	Q6.8 Heavy rain	Housing	F: 86,98	I: 114,03	3647,5	0,000
13	Q6.9 Fire	Housing	F: 89,85	I: 111,15	3935,0	0,002
14	Q6.6 Traffic accidents	Housing	F: 109,24	I: 91,76	4126,0	0,023
15	Q6.3 Crime	Housing	F: 100,24	I: 100,77	4973,5	0,939
16	Q6.2 Mud flows	Gender	M: 91,31	F: 108,17	4123,0	0,033
17	Q6.6 Traffic accidents	Gender	M: 91,82	F: 107,74	4170,0	0,039
30	Same amount...(Q13)	Housing	F: 100,32	I: 100,68	4982	0,962
31	Same amount...(Q13)	Q1_Age3	<=35: 91,49	>35: 110,46	4041,5	0,011
32	Same amount...(Q13)	Q2_Edu	0-9: 107,83	10-13: 91,54	4144,0	0,031
33	High confidence (Q14)	Housing	F: 95,16	I: 105,84	4466	0,147
34	High confidence (Q14)	Gender	M: 93,26	F: 106,54	4301	0,072
35	High confidence (Q14)	Q1_Age3	<=35: 95,71	>35: 105,79	4485	0,172
36	High Confidence (Q14)	Q2_Edu	0-9: 104,42	10-13: 95,71	4518,5	0,239
37	High Confidence (Q14)	Affected (Q9)	Yes: 94,9	No: 105,99	4445,0	0,132
38	Influence in...(Q15)	Q1_Age3	<=35: 92,43	>35: 109,42	4140,5	0,025
39	Influence in...(Q15)	Q2_Edu	0-9: 106,65	10-13: 92,98	4273,5	0,073
40	Move to a safer...(Q16)	Housing	F: 99,43	I: 101,57	4893	0,758
41	Move to a safer...(Q16)	Q3_div	Un: 95,4	Em: 84,96	3431	0,123
42	Move to a safer...(Q16)	Gender	M: 96,43	F: 103,89	4589,5	0,286

### Chi-Square

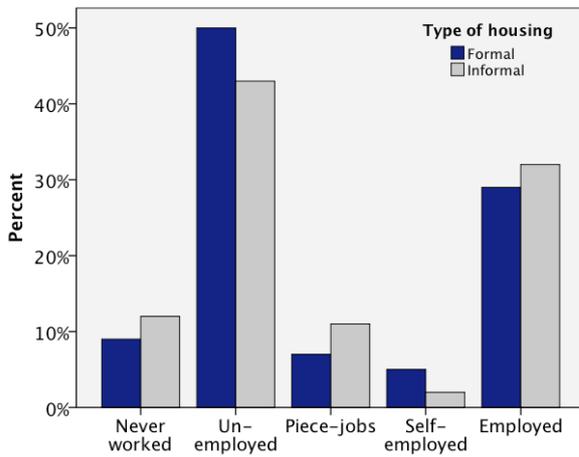
The table below presents results from Chi-Square tests.

#	Test variables	Value	df	P-value Asymp. Sig. (2-sided)	Expected count (%)
3	Education level (Q2_Edu2) x Age (Q1_Age2)	57,965	4	0,000	0
4	Employment status (Q3) x Housing	3,278	4	0,512	20
5	Employment status (Q3) x Gender	10,084	4	0,039	20
6	Years in F. (Q4_div) x Housing	57,679	5	0,000	0
7	Household size (Q5) x Housing	21,323	3	0,000	0
8	Household size (Q5) x Gender	14,457	3	0,002	0
18	Most afraid of (Q7_div) x Housing	38,855	4	0,000	0
19	Most afraid of (Q7_div) x Gender	5,946	4	0,203	0
20	Most import to reduce (Q8_div) x Housing	14,875	5	0,011	16,7
21	Affected by... (Q9) x Housing	2,42	1	0,12	0
22	Affected, type (Q9.1_div) x Housing	15,230	4	0,004	10
23	Most important help (Q10_div) x Housing	0,201	2	0,905	0
24	Most responsible (Q11) x Housing	5,145	2	0,076	0
25	Most responsible (Q11) x Gender	2,057	2	0,358	0
26	Most responsible (Q11) x Age (Q1_Age2)	2,816	4	0,589	0
27	Most responsible (Q11) x Education level (Q2_Edu2)	4,437	4	0,350	0
28	Working hardest (Q12_div) x Housing	8,902	3	0,031	0
29	Working hardest (Q12_div) x Q1_Age2	7,533	6	0,274	8,3
43	Help be distributed (Q18_div) x Housing	3,708	2	0,157	0
44	Help be distributed (Q18_div) x Gender	3,918	2	0,141	0
45	Help be distributed (Q18_div) x Q3_div	6,203	4	0,184	11,1
46	Should be most resp. (Q19_div) x Gender	4,168	3	0,244	0
47	Should be most re (Q19_div) x Q1_Age2	5,825	6	0,443	8,3
48	Should be most resp. (Q19_div) x Affected (Q9)	3,209	3	0,361	0
49	In the future... (Q20) x Gender	2,661	2	0,264	0
50	In the future... (Q20) x Affected (Q9)	4,943	2	0,084	0
51	The future... (Q20) x Housing	1,553	2	0,46	0

## Graphs

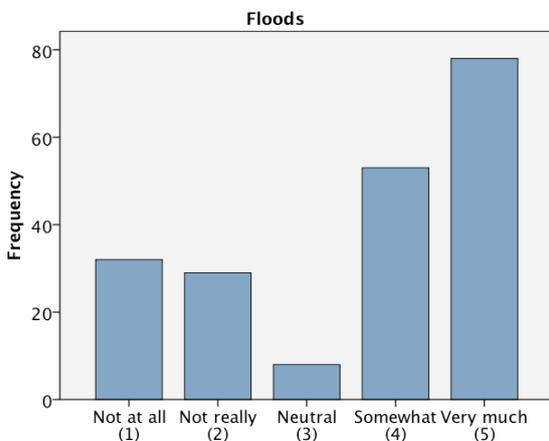
Graphs not shown in *Chapter 4 Analyzing the results* are presented below.

### Demographics

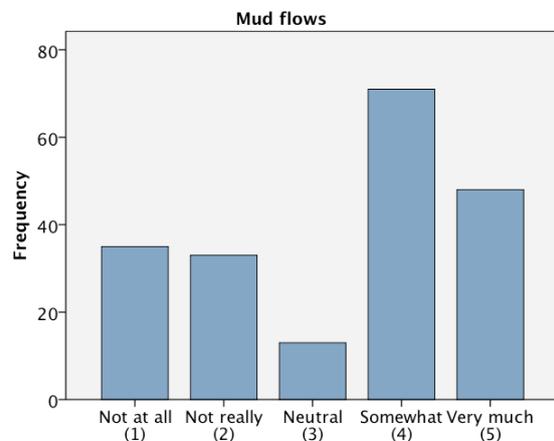


**Figure E1. Employment status x Housing.**  
Chi-square, p-value: 0,512 [4].

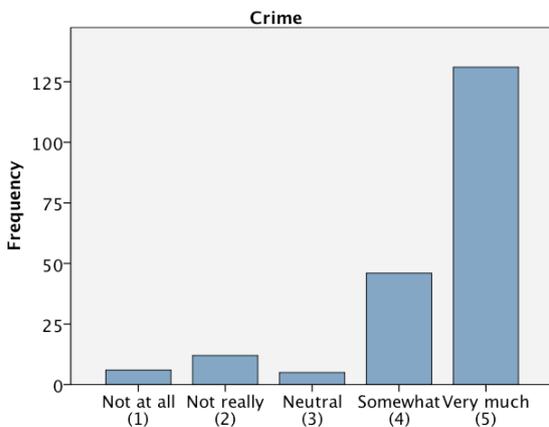
### Risk profile



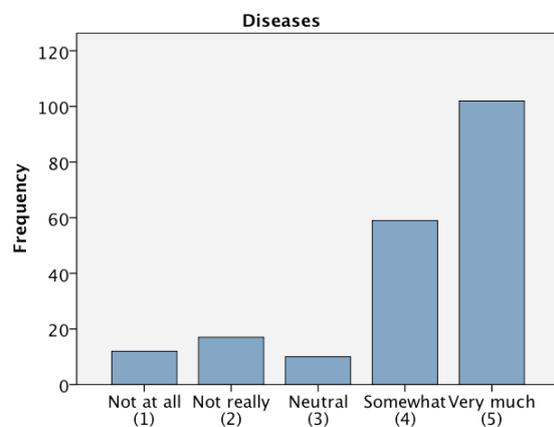
**Figure E2. Floods x All respondents.**



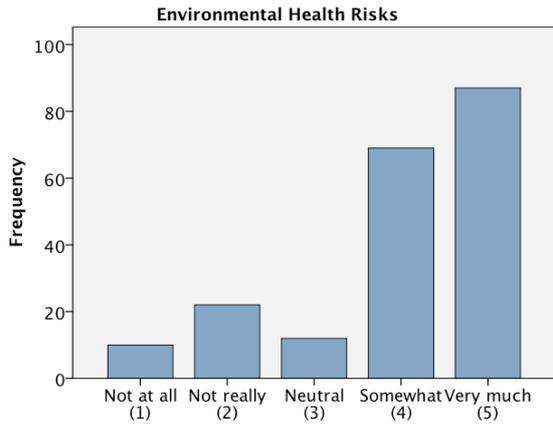
**Figure E3. Mud flows x All respondents.**



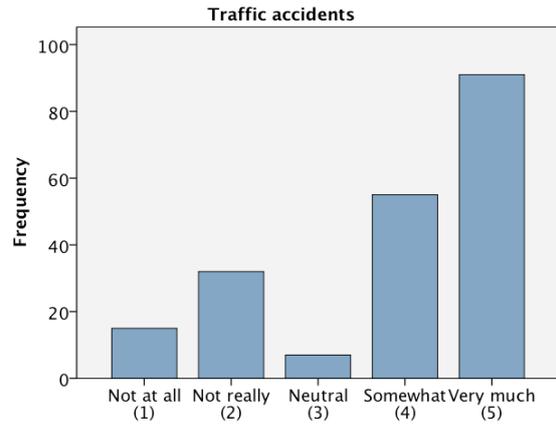
**Figure E4. Crime x All respondents.**



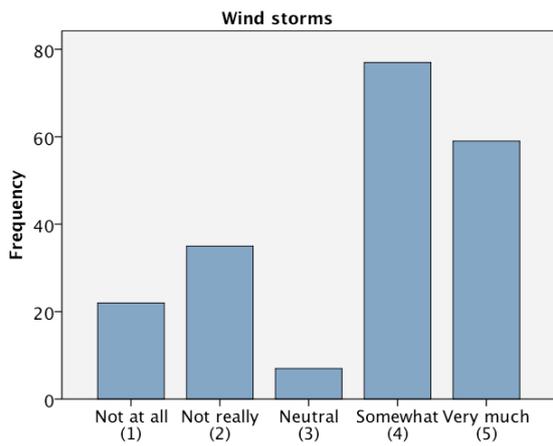
**Figure E5. Diseases x All respondents.**



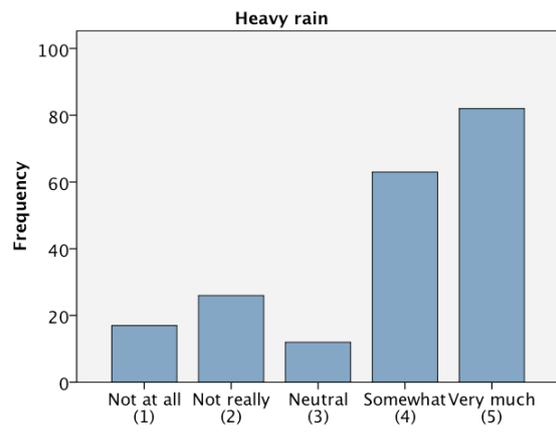
**Figure E6. Environm. Health Risks x All respondents.**



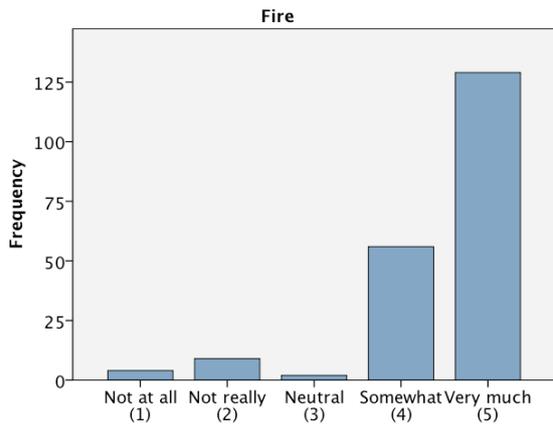
**Figure E7. Traffic Accidents x All respondents.**



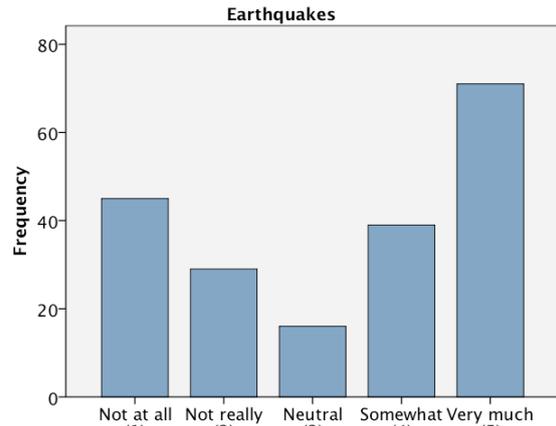
**Figure E8. Wind Storms x All respondents.**



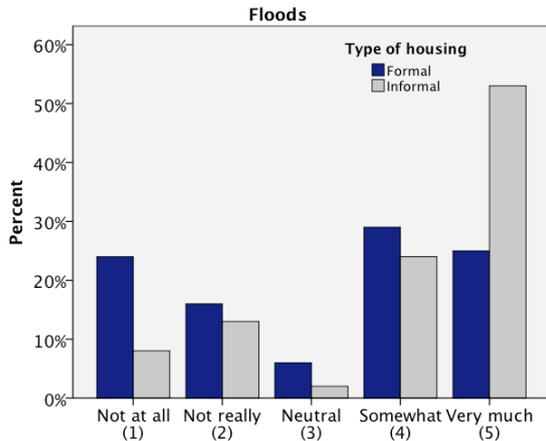
**Figure E9. Heavy rain x All respondents.**



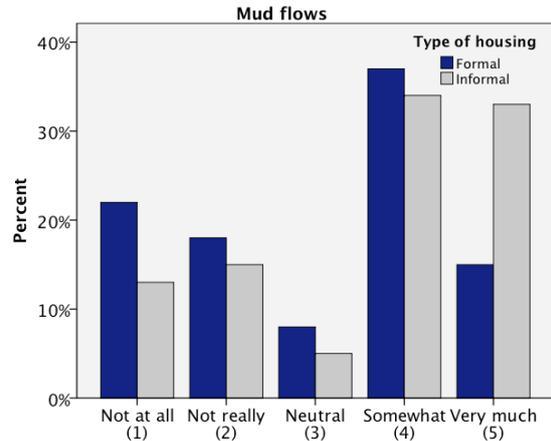
**Figure E10. Fire x All respondents.**



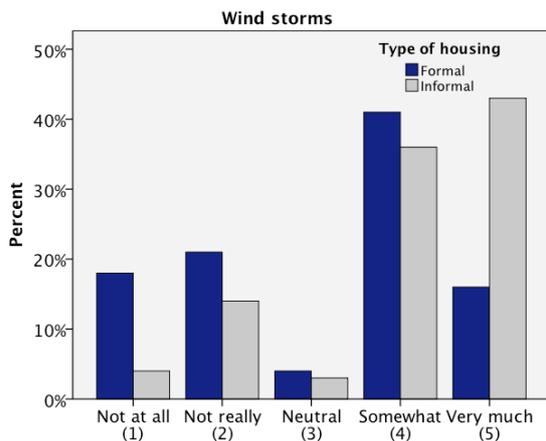
**Figure E11. Earthquakes x All respondents.**



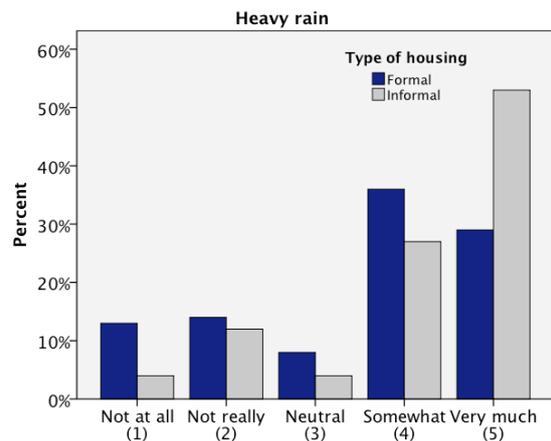
**Figure E12. Floods x Housing.**  
MW-test, p-value: 0,000 [9].



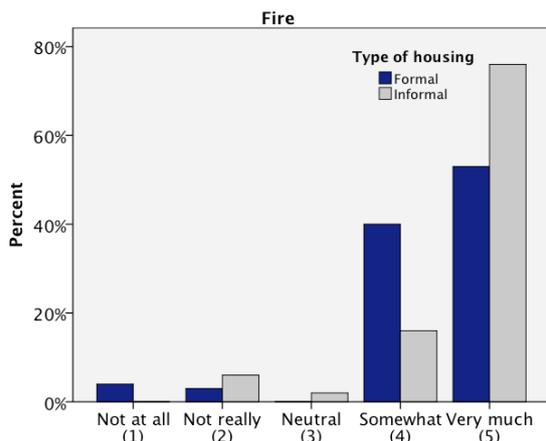
**Figure E13. Mud flows x Housing.**  
MW-test, p-value: 0,004 [10].



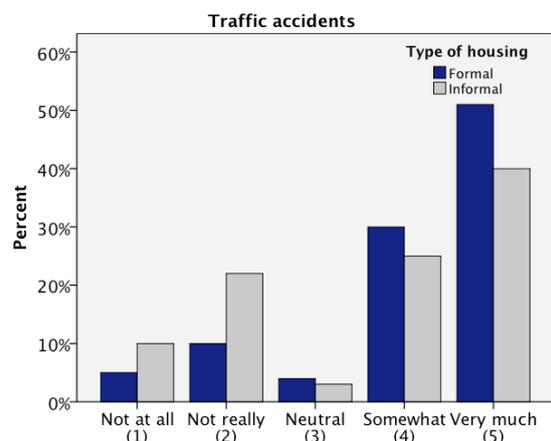
**Figure E14. Wind storms x Housing.**  
MW-test, p-value: 0,000[11].



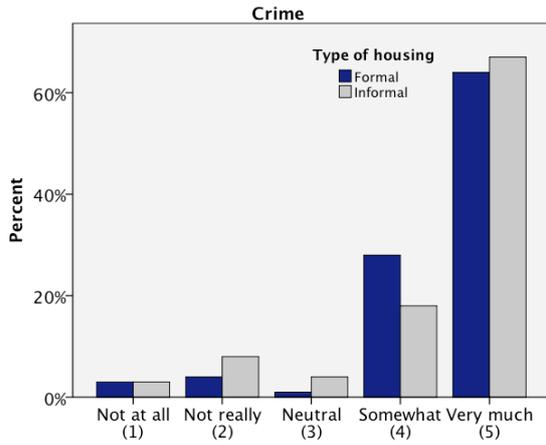
**Figure E15. Heavy rain x Housing.**  
MW-test, p-value: 0,000 [12].



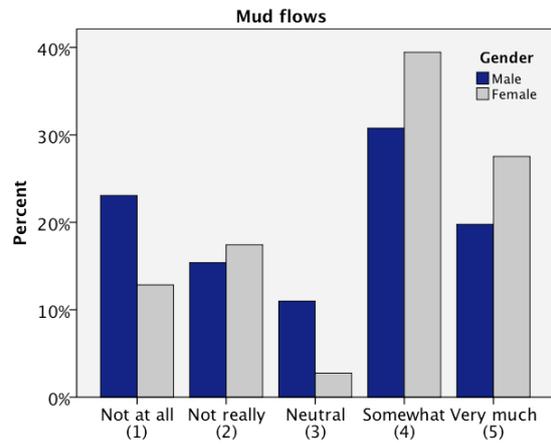
**Figure E16. Fire x Housing.**  
MW-test, p-value: 0,002 [13].



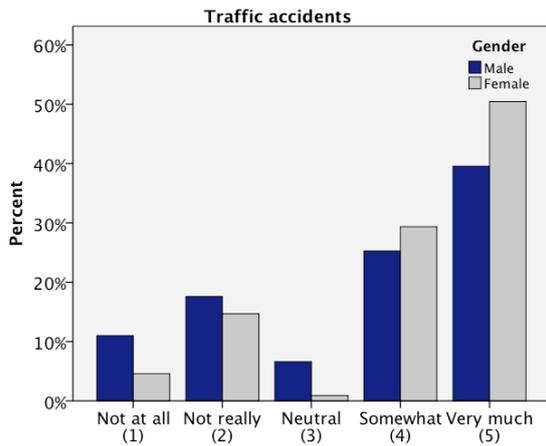
**Figure E17. Traffic Accidents x Housing.**  
MW-test, p-value: 0,023 [14].



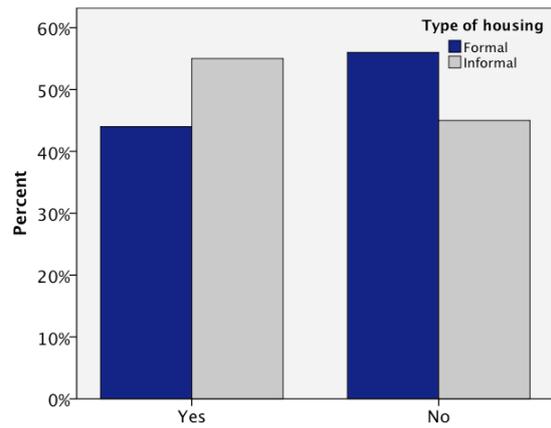
**Figure E18. Crime x Housing.**  
MW-test, p-value: 0,939 [15].



**Figure E19. Mud Flows x Gender.**  
MW-test, p-value: 0,033 [16].

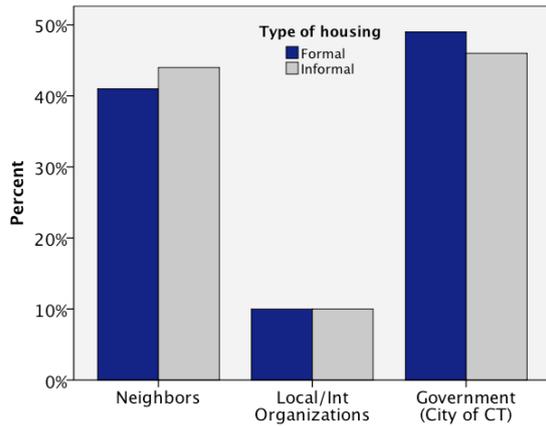


**Figure E20. Traffic Accidents x Gender.**  
MW-test, p-value: 0,039 [17].

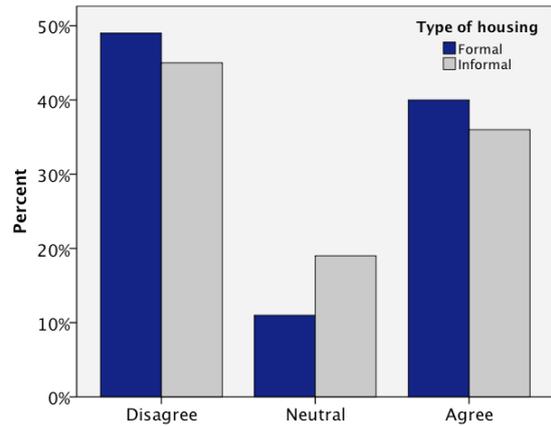


**Figure E21. Affected by hazard? x Housing.**  
Chi-square, p-value: 0,12 [21].

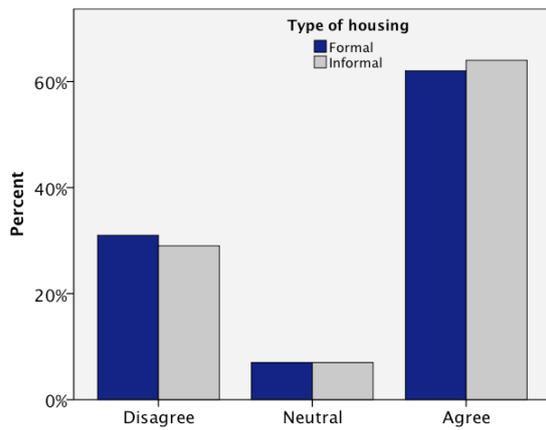
## Responsibility



**Figure E22. Most important help in case of a disaster x Housing. Chi-square, p-value: 0,905 [23].**



**Figure E23. Same amount of help x Housing. MW-test, p-value: 0,962 [30].**



**Figure E24. Move to a safer location x Housing. MW-test, p-value: 0,758 [40].**

## Codebook

A compilation of the variables used in IBM SPSS Statistics is presented below. The information is limited to a short description of the variables, measurement levels and values. Ratio level variables are in SPSS called Scale.

Variable	Variable Description	Measurement Level	Value	Label
Number	Block/Section	Nominal		
Housing	Type of housing	Nominal	1	Formal
			2	Informal
Gender		Nominal	1	Male
			2	Female
Q1	Year of birth	Scale		
Q1_Age	Age (in years)	Scale		
Q1_Age1	Age in ten year intervals	Ordinal	1	<= 28
			2	29 - 38
			3	39 - 48
			4	49 - 58
			5	59 - 68
			6	69+
Q1_Age2	Age group (Young/Middle/Old)	Ordinal	1	18-29
			2	30-49
			3	50-
Q1_Age3	Age (<=35/>35)	Ordinal	1	<=35
			2	>35
Q2	Grade	Scale		
Q2_Edu	Education level (low/high)	Ordinal	1	Gr. 0-9
			2	Gr. 10-13
Q2_Edu2	Education level (3 groups)	Ordinal	1	Gr. 0-6
			2	Gr. 7-9
			3	Gr. 10-13
Q3	Employment status	Nominal	1	Never worked
			2	Unemployed
			3	Piece-jobs
			4	Self-employment
			5	Employed
Q3_div	Employment status groups	Nominal	1	Unemployed
			2	Piece-jobs
			3	Employed
Q4	Years in Fisantekraal	Scale		
Q4_div	Years in Fisantekraal	Ordinal	1	=<3
			2	4-6
			3	7-9
			4	10-12
			5	13-15
			6	>15
Q5	Household size	Ordinal	1	1
			2	2-3
			3	4-6
			4	More than 6
Q6.1	Floods	Ordinal	1	Not at all
			2	Not really
			3	Neutral
			4	Somewhat
			5	Very much
Q6.2	Mud flows	Ordinal		Same as Q6.1
Q6.3	Crime	Ordinal		Same as Q6.1
Q6.4	Diseases	Ordinal		Same as Q6.1
Q6.5	Environmental Health Risks	Ordinal		Same as Q6.1
Q6.6	Traffic accidents	Ordinal		Same as Q6.1
Q6.7	Wind storms	Ordinal		Same as Q6.1
Q6.8	Heavy rain	Ordinal		Same as Q6.1
Q6.9	Fire	Ordinal		Same as Q6.1
Q6.10	Earthquakes	Ordinal		Same as Q6.1
Q7	Most afraid of	Nominal	1	Floods
			2	Mud flows
			3	Crime
			4	Diseases
			5	Environmental Health Risks
			6	Traffic accidents
			7	Wind storms
			8	Heavy rain
			9	Fire
			10	Earthquakes
			11	Other
Q7_div	Most afraid of. Floods, environmental health risks, traffic accidents, wind storms and heave rain same group	Nominal	1	Crime
			2	Diseases
			3	Fire
			4	Earthquakes
			5	Other
Q8	Most important to reduce	Nominal		Same as Q7
Q8_div	Most important to reduce. Mud flows, environmental health risks, wind storms, heavy rain and earthquakes same group	Nominal	1	Floods
			2	Crime
			3	Diseases
			4	Traffic accidents
			5	Fire
			6	Other
Q9	Affected by any hazard...?	Nominal	1	Yes
			2	No

Q9.1	Type of hazard affected by	Nominal	1 2 3 4 5 6 7 8 9 10	Floods Mud flows Crime Diseases Environmental Health Risks Traffic accidents Wind storms Heavy rain Fire Earthquakes
Q9.1_div	Type of hazard affected by. Mud flows, traffic accidents, wind storms and heavy rain same group	Nominal	1 2 3 4 5	Floods Crime Diseases Fire Other
Q10	Q10. From whom would you receive the most important help in case of a <i>disaster</i> ?	Nominal	1 2 3 4	Neighbors Local organizations Government (City of CT) International organizations
Q10_div	Local and international organizations same group	Nominal	1 2 3	Neighbors Local/Int Organizations Government (City of CT)
Q11	Q11. Who is most responsible for your safety in case of a <i>disaster</i> ?	Nominal	1 2 3	Yourselves The leaders of the community Government (City of CT)
Q12	Q12. Who is working hardest to make you safer towards <i>disasters</i> ?	Nominal	1 2 3 4 5	Yourselves The leaders of the community Local organizations Government (City of CT) International organizations
Q12_div	Local and international organizations same group	Nominal	1 2 3 4	Yourselves The leaders of the community Local/Int Org. Government (City of CT)
Q13	Q13. I think that people in Fisantekraal get the same amount of help...	Ordinal	1 2 3	Disagree Neutral Agree
Q14	Q14. I have high confidence...	Ordinal		Same as Q13
Q15	Q15. My influence in the...	Ordinal		Same as Q13
Q16	Q16. Safer location...	Ordinal		Same as Q13
Q18	Q18. How should help be distributed to reach you in case of a <i>disaster</i> ?	Nominal	1 2 3 4	Through local NGO's Through community leaders Through Government (City of CT) Through International organizations
Q18_div	Local and international organizations same group	Nominal	1 2 3	Through local/int organizations Through community leaders Through Government (City of CT)
Q19	Q19. Who do you think should be most responsible for making you safer towards <i>disasters</i> ?	Nominal	1 2 3 4 5	Yourselves The leaders of the community Local NGO's Government (City of CT) International organizations
Q19_div	Local and international organizations same group	Nominal	1 2 3 4	Yourselves The leaders of the community Local/Intern. Org. Government (City of CT)
Q20	Q20. In the future, do you think the community will be more safe or more at risk (dangerous) in terms of disasters? Why?	Nominal	1 2 3	More at risk More safe Don't know

# Appendix F – Questionnaire

## English version

### Part 1: Socio-Demographic Profile

Block: ..... Housing type: .....

Gender: Male Female

1. What year are you born? .....
2. What is the highest level of education you have completed? .....
3. What is your current employment status?  
*Never worked      Unemployed      Piece-jobs      Self-employed      Employed*
4. How long have you lived in this area? .....
5. How many members live in the household including you?  
*1                  2-3          4-6          More than 6*

### Part 2: Risk Profile

6. Please indicate how *afraid* you are of the following hazards in your community:

	Not at all (1)	Not really (2)	Neutral (3)	Somewhat (4)	Very much (5)
<b>Floods</b>					
<b>Mud flows</b>					
<b>Crime</b>					
<b>Diseases</b>					
<b>Environmental health risks</b>					
<b>Traffic accidents</b>					
<b>Wind storms</b>					
<b>Heavy rain</b>					
<b>Fire</b>					
<b>Earthquakes</b>					

7. What are you most afraid of?  
 .....  
 .....
8. Which of the above mentioned hazards do you think is most important to reduce?  
 .....  
 .....
9. Have you ever been affected by any of the above mentioned hazards while living in the community?  
 .....  
 .....

**Part 3: Responsibility**

**10. From whom would you receive the most important help in case of a *disaster*?**

*Neighbors*                      *Local organizations*                      *Government (City of Cape Town)*  
*International organizations*

**11. Who is most responsible for your safety in case of a *disaster*?**

*Yourselves*                      *The leaders of the community*                      *Government (City of Cape Town)*

**12. Who is working hardest to make you safer towards *disasters*?**

*Yourselves*                      *The leaders of the community*                      *Local Organizations*  
*Government (City of Cape Town)*                      *International organizations*

**13. I think that people in Fisantekraal get the same amount of help as people in other parts of Western Cape in case of a disaster.**

*Disagree*                      *Neutral*                      *Agree*

**14. I have high confidence in the authorities ability to keep me safe in case of a disaster.**

*Disagree*                      *Neutral*                      *Agree*

**15. My influence in the decisions made in the community has a positive effect on how I survive in case of *disasters*.**

*Disagree*                      *Neutral*                      *Agree*

**16. If I had the option I would move to a safer location within South Africa.**

*Disagree*                      *Neutral*                      *Agree*

**17. What kind of help do you think is most important to get in case of a disaster?**

.....  
.....

**18. How should help be distributed to reach you in case of a *disaster*?**

*Through local NGO's*                      *Through community leaders*  
*Through government (City of Cape Town)*                      *Through International organizations*

**19. Who do you think should be most responsible for making you safer towards *disasters*?**

*Yourselves*                      *The leaders of the community*                      *Local NGO's*  
*Government (City of Cape Town)*                      *International organizations*

**20. In the future, do you think the community will be more safe or more at risk (dangerous) in terms of disasters? Why?**

.....  
.....

## Afrikaans version

### Deel 1: Sosiale-demografiese Profiel

Blok: .....

Tipe behuising: .....

Geslag:           Manlik   Vroulik

1. Jaar van geboorte? .....

2. Hoogste vlak van opvoeding voltooi? .....

3. Wat is u werk status?

*Nooit gewerk           Werkloos           Loswerker           Eie besigheid           Vaste werk*

4. Hoe lank is u woonagtig in hierdie gebied? .....

5. Hoeveel lede in huishouding woon in die huis, insluitend jouself?

*1           2-3           4-6           Meer as 6*

### Deel 2: Risiko Profiel

6. Dui asseblief aan hoe *bang* jy is vir die volgende gevare in jou gemeenskap:

	Geensins (1)	Nie juis nie (2)	Neutraal (3)	Ietwat (4)	Baie (5)
Vloede					
Modder glye					
Misdaad					
Siektes					
Omgewingsgesondheidsrisiko's					
Motorongelukke					
Windstorms					
Swaar reens					
Brande					
Aardbewings					

7. Waarvoor is u die bangste?

.....

.....

8. Watter van die bogenoemde gevare dink jy is die belangrikste om te verminder?

.....

.....

9. Was jy al ooit geaffekteer deur enige van die bogenoemde gevare gedurende jou verblyf in die gemeenskap?

.....

.....

### **Deel 3: Wie is Verantwoordelik**

**10. Van wie sal julle die belangrikste hulp ontvang in die geval van 'n ramp?**

*Bure      Plaaslike organisasies      Regering (Stad Kaapstad)*

*Internasionale Organisasies*

**11. Wie is die meeste verantwoordelik vir julle veiligheid in die geval van 'n ramp?**

*Julleself      Die leiers van die gemeenskap      Regering (Stad Kaapstad)*

**12. Wie werk die hardste om julle meer te beveilig teen rampe?**

*Julleself      Die leiers van die gemeenskap      Plaaslike organisasies*

*Regering (Stad Kaapstad)      Internasionale Organisasies*

**13. Ek dink dat mense in Fisantekraal dieselfde hoeveelheid hulp kry as mense in ander dele van die Wes-Kaap in die geval van 'n ramp.**

*Stem nie saam nie      Neutraal      Stem saam*

**14. Ek het baie vertroue in die owerheid se vermoë om my veilig te hou in die geval van 'n ramp.**

*Stem nie saam nie      Neutraal      Stem saam*

**15. My invloed op die besluite wat geneem word in die gemeenskap het 'n positiewe uitwerking op hoe ek in die geval van rampe oorleef.**

*Stem nie saam nie      Neutraal      Stem saam*

**16. As ek die opsie gehad het sou ek trek na 'n veiliger plek in Sud-Afrika.**

*Stem nie saam nie      Neutraal      Stem saam*

**17. Watter soort hulp dink jy is die belangrikste om te ontvang in die geval van 'n ramp?**

.....  
.....

**18. Hoe behoort hulp versprei te word om jou te bereik in die geval van 'n ramp?**

*Deur plaaslike NRO's      Deur gemeenskapsleiers*

*Deur die regering (Stad Kaapstad)      Deur Internasionale organisasies*

**19. Wie dink julle behoort die meeste verantwoordelik te wees om julle de beveilig teen rampe?**

*Julleself      Die leiers van die gemeenskap      Plaaslike NRO's*

*Regering (Stad Kaapstad)      Internasionale Organisasies*

**20. In die toekoms, dink jy dat die gemeenskap veiliger of meer blootgestel (in gevaar) sal wees in terme van rampe? Heekom?**

.....  
.....

## Xhosa version

### Isahlulo 1: Iprofayili yeeNkcukacha zokuHlala

Ibhloko: .....

Uhlobo lwezindlu: .....

Isini: Ndoda Umntu wasetyhini

1. Uzelwe ngowuphi unyaka? .....
2. Leliphi elona nqanaba lemfundo oluphumeleleyo? .....
3. Ithini imeko yakho yangoku yengqesho?

*Andizange ndasebenza      Andisebenzi      Izingxungxo      Ndiyazisebenzela      Ndiqeshiwe*

4. Unexesha elingakanani uhlala kule ndawo? .....
5. Mangaphi imalungu ahlala endlini kuquka nawe?

*1      2-3      4-6      Ngaphezu kwesi-6*

### Isahlulo 2: Iprofayili yoMngcipheko

6. Nceda ubonakalise ukuba *uzoyika* kangakanani ezi ngozi zilandelayo kwindawo ohlala kuyo:

	Akunjalo konke konke (1)	Hayi kangako (2)	Andinacala (3)	Nokwana (4)	Kakhulu (5)
Izikhukula					
Izikhukula ezinodaka					
Ulwaphulo-mthetho					
Izifo					
Imingcipheko yempilo yokusingqongileyo					
Iingozi zezithuthi					
Umoya wezaqhwathi					
Imvula ena ngamandla					
Umlilo					
Inyikima					

7. Yeyiphi eyona nto oyoyika kakhulu?

.....  
.....

8. Yeyiphi kwezi ngozi zikhankanywe ngentla ocinga yeyona ibalulekileyo emayincitshiswe?

.....  
.....

9. Ingaba wakhe wachatshazelwa nokuba yeziphi kwezi ngozi zikhankanywe ngentla ngelishesha uhlala kule ndawo?

.....  
.....

### **Isahlulo 3: Uxanduva**

**10. Ungalufumana kubani olona ncedo lubalulekileyo xa kunokubakho *intlekele*?**

*Abamelwane            Imibutho yasekuhlaleni    Urhulumente (iSixeko saseKapa)*

*Imibutho yezizwe ngezizwe*

**11. Ngubani oyena mntu onoxanduva lokhuseleko lwakho xa kunokubakho *intlekele*?**

*Nini            Zinkokheli zokuhlala            Urhulumente (iSixeko saseKapa)*

**12. Ngubani oyena osebenza nzima ekwenzeni ukhuseleke ngakwiintlekele?**

*Nini            Zinkokheli zokuhlala            Imibutho yasekuHlaleni*

*Urhulumente (iSixeko saseKapa)            Imibutho yezizwe ngezizwe*

**13. Ndinga ukuba abantu baseFisantekraal bafumana uncedo olulinganayo nolwabantu abakwezinye iindawo zaseNtshona Koloni xa kukho *intlekele*.**

*Andivumelani                            Andinacala                            Ndiyavuma*

**14. Ndinethemba elikhulu kubuchule boogunyaziwe bokundigcina ndikhuselekile xa kunokubakho *intlekele*.**

*Andivumelani                            Andinacala                            Ndiyavuma*

**15. Impembelelo yam kwizigqibo ezithathwa ekuhlaleni inomphumela omhle ngendlela endisinda ngayo xa kukho *iintlekele*.**

*Andivumelani                            Andinacala                            Ndiyavuma*

**16. Ukuba bendinokuzikhethela, ndingafudukela kwindawo ekhuselekileyo kwalapha eMzantsi Afrika.**

*Andivumelani                            Andinacala                            Ndiyavuma*

**17. Hlobo luni loncedo ocinga ukuba lolona lubalulekileyo olufunayo xa kungakho *intlekele*?**

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.....

**18. Uncedo kufanele lusasazwe njani ukuze lufikelele kuwe xa kungakho *intlekele*?**

*NgeeNGO zasekuhlaleni            Ngeenkokeli zokuhlala            Ngorhulumente (weSixeko saseKapa)*

*Ngemibutho yeZizwe ngezizwe*

**19. Ucinga ukuba ngubani oyena mntu okufanele abenoxanduva lokukhusela wena ngakwiintlekele?**

*Nini            Zinkokheli zokuhlala            ZiiNGO zasekuhlaleni*

*Ngurhulumente (wesiSixeko saseKapa)            Yimibutho yezizwe ngezizwe*

**20. Kwixesha elizayo, ucinga ukuba uluntu luza kukhuseleka ngakumbi okanye luza kuba semngciphekweni (engozini) ngokwakwiintlekele? Ngoba?**

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