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# Local Resilience to Natural Hazards in Zimbabwe: Experiences from Mhondoro-Ngezi Rural Communities

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**Abstract**

This article, based on a study carried out in Mhondoro-Ngezi District during the period 2017 to 2019, assesses strategies used by the Mhondoro-Ngezi District rural communities of Zimbabwe to cope with the effects of natural hazards. Rural rapid and participatory appraisal methodologies were used to collect data from 128 members of family units from a regional populace of about 102345. Furthermore, six (6) key informants were contacted for more detailed and nuanced qualitative information. In addition, three focus group discussions (FGDs) were conducted to complement what was obtained from the interviews. In a nutshell, Mhondoro-Ngezi District communities relied on subsistence farming and nutritional gardening for livelihoods. During drought seasons, most households depended on open wells on dry river beds for domestic water use and for watering their gardens. Diversification into activities such as trading and hawking, hunting and gathering wild fruits, brick-moulding, wage labour and artisanal work were noted as means of survival. It was also found out that veld fires and environmental degradation due to human negligence were a considerable challenge in Mhondoro-Ngezi District. The article establishes that some groups in the study communities are more vulnerable to natural hazards than others. The article also proposes measures for mitigating the negative impacts of natural hazards in the study area.

**Keywords:** *communities, diversification, livelihoods, subsistence, sustainable, vulnerability*

## 1. Introduction

As frequencies of natural hazards increase globally, the socio-economic and environmental stability of families and communities are disturbed. Mhondoro-Ngezi District has become prone to perennial drought with occasional flooding, meaning that, if the community is not facing droughts, it is probably dealing with floods (Mashizha et al*.,* 2017, Niboye et al*.,* 2020). As such, communities have espoused innovative coping strategies to reduce the effects of natural disasters (Burchia et al*.,* 2016). While in the near past local communities in the study area may have lacked modern technological support, however, such strategies have been pertinent and effective to the needs of the people (Carpenter, 2013). Rural communities respond to seasonal food insecurity and livelihood shocks by adopting a wide range of behavioural adjustments (Carter et al., 2008). These strategies either secure additional food through the sale of assets, begging, borrowing, barter trading, or adjusting to having less food by rationing or

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diversifying diets. However, all these coping initiatives come at a cost that has negative implications for the economic, nutritional, social and environmental equilibrium that is often a characteristic of self-reliant communities.

## 2. Conceptual Framework

The analysis of vulnerabilities and coping strategies in the Mhondoro-Ngezi study was informed by the pressure and release model (PAR) developed by Blaikie, Cannon, Davis and Wisner (1994). The model provides a framework for critical susceptibility analysis in terms of specific hazard situations and livelihoods inherent in a particular social setting. It was further used in this study to trail the progression of the vulnerability of societies by addressing and analysing the nature of hazards shaped by a chain of dynamic pressures. More importantly, it was used to inform the assessment of communities' disaster risk reduction (DRR) measures and coping strategies, and how they can be enhanced to improve rural livelihoods.

As shown in the PAR model in Figure 1, to appreciate susceptibility, it is important to consider the underlying issues or root causes that create vulnerabilities, the dynamic pressures that make the root causes more outstanding. and situations that make people vulnerable to hazards and disasters (Wisner et al., 2004).

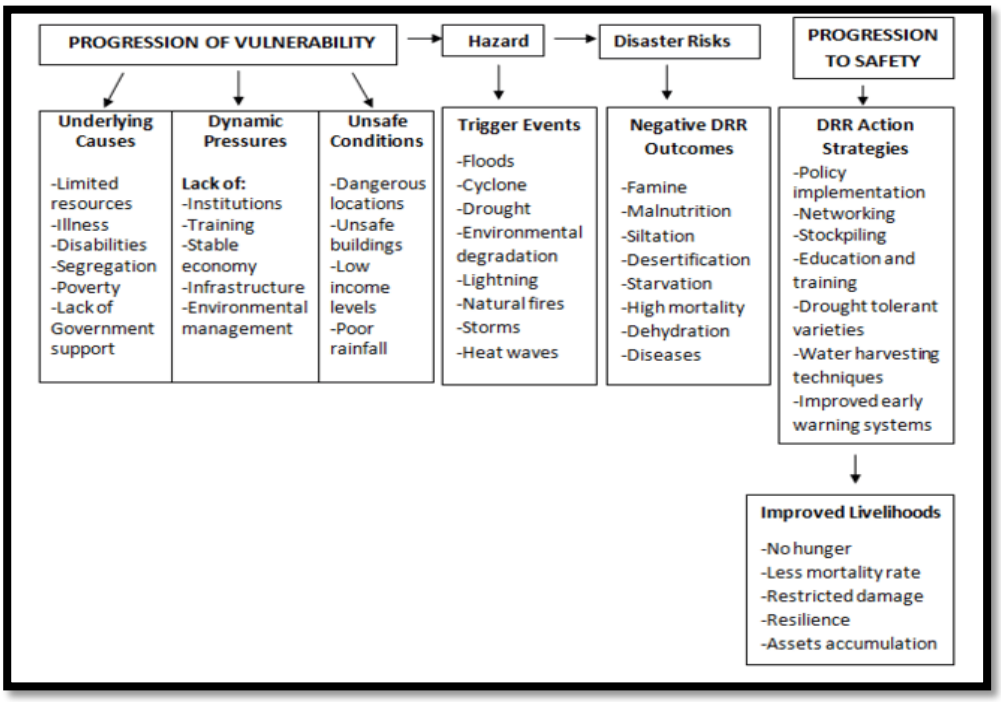


**Figure 1: Pressure and Release Model**

**Source:** Modified from Wisner et al. (2004)

Through the model, the conception of vulnerabilities according to the communities' perception can be ascertained. The PAR model assists communities analyse and build capacities that not only help in the event of a disaster; but help boost assets that enable them attain sustainable livelihoods (Twigg, 2004). These livelihoods should be sustainable to make members of rural communities resilient and become more protected from the impacts of hazards and disasters.

## 3. Methodology and Justification for the Study Area

The study utilized both quantitative and qualitative information, hence the adoption of a descriptive survey approach. A systematic random sampling technique was used to select 128 respondents (8 respondents from each of the 16 wards) to fill in a closed and open-ended questionnaire that was administered to them. A total of 3 focus group discussions (FGDs), comprising of 8 respondents for each FGD, were carried out. Members of the FGD groups were drawn from the community, traditional and religious leaderships. It was ensured that all interest groups were represented in these FGDs. In addition, 6 key informants were interviewed. These were purposively chosen based on their positions in the community or district that made them be involved with disaster risk-reduction activities in the area, thus rendering them rich sources of information. They were selected from members of parliament and senate, government workers at district level, and local government officials. A snowballing procedure was utilized to locate key informants.

The Mhondoro-Ngezi District falls under natural region 3, which receives an annual rainfall of 500-750mm (FAO, 2017). The district is characterized by fluctuating rainy seasons, extended mid-season dry spells, and periodic droughts (Madamombe, 2014). The Mhondoro-Ngezi communities rely on subsistence farming, which is vulnerable to droughts and floods. These natural calamities are the major drivers of food insecurities in the area (Mashizha et al*.,* 2017). The persistent adverse weather conditions in the district have often caused extensive livestock loss, crop failure, and starvation of people (Niboye et al., 2020). Hence, the area was adopted to study the communities' coping mechanisms in the face of these adversities.

## 4. Findings

The findings are presented in four sections. The first section focuses on important information in understanding how populations in the Mhondoro-Ngezi District were likely to be resilient in the face of natural hazards, that is, the sources of livelihoods used by the Mhondoro-Ngezi communities for survival in times of natural hazards. The second and the third sections examine sources of livelihoods, as well as the perceptions of natural hazards in the district. Furthermore, most common hazards in the district, and the most vulnerable populations to disasters, are presented.

Figure 2 shows the sources of livelihoods for the Mhondoro-Ngezi communities. These include subsistence farming, trading and hawking, hunting and gathering, brick-moulding, artisan work, wage labour, nutritional gardening, and others. We discuss these in brief below.

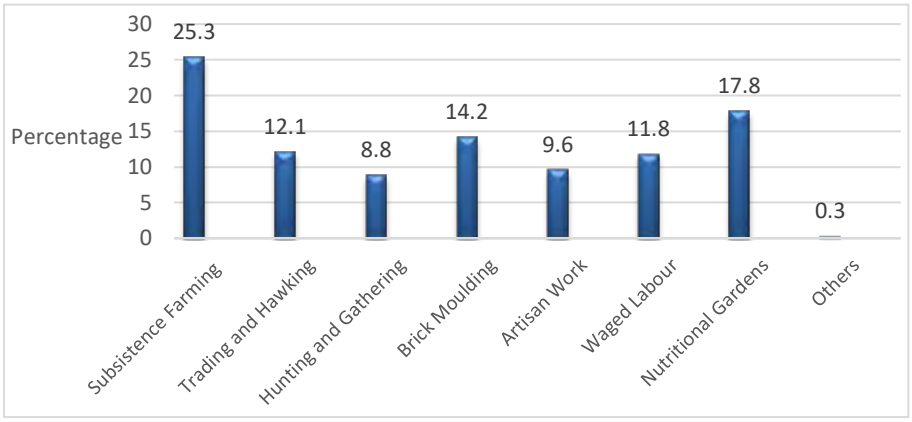


**Figure 2: Sources of Livelihoods for Mhondoro-Ngezi Communities**
**Source:** Survey Data (2017)

### *4.1 Subsistence Farming*

The major crops grown in the area under study include maize, soybeans, paprika, sorghum, tobacco and groundnuts; with varying contribution to household income due to unpredictable and often inadequate rains. With the exception of paprika that is often grown as a garden crop, all other mentioned crops are highly susceptible to the vagaries of weather. Information from the Agricultural, Technical and Extension Services Department (AGRITEX) officials indicated that the Mhondoro-Ngezi region receives limited annual rains. As a result, dependence on subsistence farming for livelihoods was risky, inferring that the population was always vulnerable to natural hazards, especially droughts. Gross (2012) argues that rural communities lack some basic understanding of the climate changes that seem to have affected rainfall patterns, thus making them even more vulnerable to climate-induced disasters as they lack the ability to anticipate rainfall trends in a given season. This is also a manifestation of a knowledge gap, illiteracy, and the lack of information currency. Nevertheless, of late there have been trends in venturing into non-farm activities so as to ensure sustained livelihoods for the households.

### *4.2 Nutritional Gardens*

According to the local Chief, vegetable gardens make a profound contribution to food security. Some of the vegetables are normally dried, in a local way of preserving the veggies known locally as *kufusha.*[1] This strategy, however, was limited mainly to food security. This behaviour is in line with Carter et al. (2008), who posited that rural communities respond to seasonal food insecurity and livelihood shocks through coping strategies. However, long-term sustainability and a holistic contribution to the improved quality of life were constrained by the lack of water and financial resources.

[1]*Kufusha* is the process of cooking and drying of vegetables as way of preservation for future use.

**Photo 1: Nutritional Garden for Household Consumption in Ward 8**
**Source:** Field Survey Observation (2017)

The viability of this intervention depended on one's access to water. Droughts have repeatedly affected the communities' water resources. As a result, individuals walk long distances in search of water for domestic use and watering of gardens. It emerged in one of the FGDs that during drought seasons most households relied on water obtained from open wells that are dug in dry river beds, locally known as '*mifuku'*[2] (sand abstraction), for domestic use and watering their nutritional gardens. This practice was mostly notable along the Muzvezve and Ngezi rivers.

**Photo 2:Villager Drawing Water from an Open Well along Muzvezve River**
**Source:** Field Survey Observation (2017)

[2]Mifuku are sources of water from holes that are dug on silted dry river beds

This reveals that the communities depended on the natural environment for survival even during unfavourable conditions. One of the village health workers asserted:

> *"Mifuku-sourced water is very safe because the river sand would have filtered it, making it clean, safe and fit for domestic use and watering our nutritional gardens without any harm. The distance that we walk to and from these river banks has taught us to use water sparingly and conservatively."*

### *4.3 Trading and Hawking*

The study also revealed that 12.1% of the Mhondoro-Ngezi communities depended on trading and hawking for survival. However, the District Administrator was quoted as saying;

> *"It must be noted that while such enterprising behaviour could indeed sustain many who might go on to become big-time entrepreneurs, for many, the endeavour is based on desperation and the lack of employment opportunities."*

In the Mhondoro-Ngezi communities, where resources were scarce and spending power low, those who depended on trading and hawking were not making brisk businesses. Sometimes the situation of not making sales would become worse, making them even more susceptible to food insecurity and unable to adapt to disasters. In such a scenario, Deli (2011) asserts that necessity entrepreneurship is driven by the spending power of the people in a particular environment. The spending power of people would in the same vein affect those who depended on hunting and gathering (8.8 %), brick-moulding (14.2 %), wage labour (11.8%) and artisan work (9.6 %), since all these activities are money-dependent.

The socio-economic condition of the communities often has some negative impact on such small-scale businesses. Even those that are formally employed are faced with high cost of basic commodities, meaning that the majority of people in the district can be classified as poor, further exposing them to natural hazards. In this kind of situation, it has been found that livelihoods based on informal strategies and subsistence farming in unsupported communities could be the panacea to perennially vulnerable communities and populations, a situation that is true for communities in the Mhondoro-Ngezi District (Mapira, 2011).

The communities in the Mhondoro-Ngezi District have realized that they needed to reduce their exposure to the impact of disasters such as droughts. As such, most households diversified their livelihoods, both as a short- and long-term disaster risk reduction (DRR) strategy. Livelihood diversification proved to be one of the DRR mitigation and coping strategies that seem to have helped the survival of Mhondoro-Ngezi communities so far. The study revealed that communities in the district engaged in non-farming activities as a way of diversifying livelihoods. These included the making and selling of wood carvings, clay pots, thatching grass, and gathering of wild fruits. Wage labour and farm brick-moulding were also livelihood diversification strategies for both men and women, and also children.

### *4.4 Wood Carving*

Most men in Mhondoro-Ngezi District engage in wood carving as a livelihood diversification strategy. Although wood carving as a livelihood strategy reflects high levels of creativity and innovation on the part of local actors, it has also produced conflicting livelihood outcomes, both positive and negative. Cash sales contributes to the survival of households, but on the other hand contributes to environmental degradation due to indiscriminate cutting down of trees. In the long-term, environmental degradation contributes to climate change; which in turn adversely affects agricultural production as observed by the Environmental Management Agency manager:

> *"Wood carving as a livelihood strategy was constrained by laws prohibiting tree felling for personal gain, particularly endangered species. In addition, its aim of generating cash was often impeded by a poorly performing economy in the country. It is also important to note that livelihoods based on flora should be properly regulated as they are likely to increase land degradation, which in turn increases the impacts of climate change related disasters."*

**Photo 3: Wood Carving as a Livelihood Diversification Strategy for Household Economy in Ward 7**

**Source:** Field Survey Observation (2017)

### *4.5 Pottery*

It was also established that rural women in Mhondoro-Ngezi District were not passive recipients but engaged in entrepreneurial and innovative activities. Women engaged in clay pot-moulding as an income generating activity to reduce the negative impacts of droughts. During one session of FGDs, a group of women aserted:

*"We and our children move around selling small pots. Bigger ones are taken by order from our homes. Most of us have become well- known that customers come to our homes to place order for their products. The prices for the pots range from 2 to around 40 Zimbabwean dollars, depending on the type and size of the pot. For those who can not afford to pay in cash we can exchange with grains such as maize, ground nuts, round nuts, sorghum, pearl and finger millet equivalent to the size of the pot. We can exchange with new or old clothes as well as with poultry, depending on the size of pot."*

A sample of clay pots is presented in Photo 4.

**Photo4: Clay Pots for Sale as a Livelihood Strategy in Ward 7**
**Source:** Field Survey Observation (2017)

In as much as these clay pots provide temporary reprieve, the District Administrator observed that:

*"Whilst the significant exploitation of natural resources for livelihoods is appreciated, these clay products do not create lasting opportunities for rural livelihood enhancement."*

### *4.6 Selling Thatching Grass*

The selling of thatching grass during flooding periods was also a common livelihood strategy among the women, particularly in Wards 1, 13, 14, 15 and 16 where the population density was low. Grass used for thatching was normally harvested between the months of May and December. Women participants had this to say regarding this activity:

*"We harvest an average of 2000 bundles in a season, making an average of seventy (70) Zimbabwean dollars. Sometimes we exchange thatching grass for soap, kitchen utensils, blankets and clothes. Our major clients are businesspeople and commercial farmers in the Beatrice and Harare areas. The selling of thatching grass has improved our socio-economic status, enabling us to look after our children by providing them with food, clothing and school fees."*

Photo 5 shows a sample of thatching grass sold by women in Mhondoro-Ngezi.

**Plate 5: Thatching Grass for Sale, a Livelihood Strategy in Ward 1**
**Source:** Field Survey Observation (2017)

The study findings evidenced that Mhondoro-Ngezi community's human capital lies in its ability to engage in wood carving, pottery and selling of thatching grass. Such participatory efforts to build resilience for the communities would lead to the provision of financial capitals to enhance business strategies. In some cases, training would be required to ensure that local businesses by the population is profitable. Perhaps, what needed to be done was to refocus on the DRR approaches in the district, based on the realization that these communities would be ready to determine their livelihoods and enhance their safety.

### *4.7 Wage labour*

Information gathered from the community showed that wage labour was also a livelihood diversification strategy in the district. Focus group discussions revealed that it was an enterprise for both men and women, and also children. However, wage labour, though a helpful source of both income and food, was nevertheless used as a survival means only following crop failures. Conversely, due to limited rainfall, there has been a reduction in the demand for wage labour for planting and weeding, which was a key source of income. Findings from community leaders indicated that the number of households deriving income and grain from wage labour had significantly decreased, making Mhondoro-Ngezi communities more vulnerable to food insecurity. In an interview, the Environmental Management Agency (EMA) revealed that:

> "*While the DRR strategies implemented in the district are varied, they do not considerably reduce the risks to which people are exposed. Some of the DRR strategies used by communities have the potential to actually increase the vulnerability of communities to future disasters like droughts. For example, livelihood diversification based on the use of natural resources might with time be detrimental to the environment eventually leading to climate change and climate variability disaster risks.*"

### *4.8 Sustainability of Sources of Livelihoods*

It has been established that livelihoods only become sustainable if people can cope and recover from stresses and shocks, maintain and enhance their capabilities and assets both in the short-term and in the future, while not undermining the natural resource base and creating opportunities for future generations (Chambers et al., 1992). However, this seems to be contrary to what was observed in Mhondoro-Ngezi District where people indiscriminately cut down trees for wood carving and firewood. They also cut thatching grass for sale and dig up some areas on land seeking clay soils for moulding bricks and pots. Such coping strategies can be effective in the short-run while they undermine the basis of livelihood in the long-run in the form of deforestation, soil erosion: all of which ultimately lead to desertification. It has been asserted that for a livelihood to be sustainable it must uphold the principles of social equity, that is, the way individuals make their livelihoods must not interrupt alternatives for others to make it (Helmore et al., 2001). This is not so in Mhondoro-Ngezi. For example, wood carving as a livelihood strategy has increased the rate of tree-felling, while pottery and brick-moulding has unsustainably degraded the environment.

## 5. Perceptions of the Reality of Natural Hazards

The population of the Mhondoro-Ngezi District perceive that natural hazards were indeed an area of concern for the community (Figure 3).

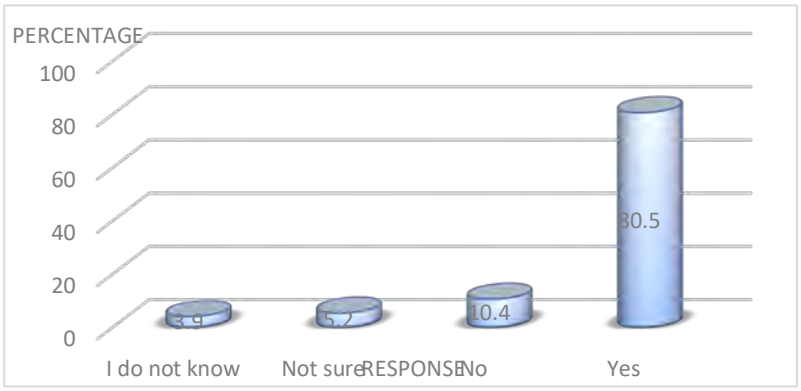


**Figure 3: Perception Level of Natural Hazards as Issues of Concern in Mhondoro-Ngezi District**

**Source:** Survey Data (2017)

It was affirmed that the district had been hard hit by persistent droughts for over a decade, with very few seasons of significant rains. In some cases when there were rains, floods occurred, which often spoilt farms and led to persistent food shortages. Furthermore, droughts have also made livestock die because of the shortage of fodder. Interviews with district officials showed that the district's livelihood was based on agriculture, and anything that stops communities from realising substantial harvests becomes a major threat to their welfare and sustenance.

**6. Most Common Hazards in Mhondoro-Ngezi District**

Drought is the most common and recurring natural hazard in the district that undermines rural livelihoods and well-being despite the use of a myriad of strategies to offset its impacts. Some NGOs such as the World Vision, CARE International, and MeDRA are engaged in drilling boreholes to provide potable water for the Mhondoro-Ngezi communities. Community leaders revealed that these boreholes are very helpful in providing water to both the people and livestock during droughts. However, if droughts are prolonged, there is a tendency of boreholes drying up. Furthermore, veld fires were the other potential hazard that communities in rural Mhondoro-Ngezi District face. This was also closely linked to environmental degradation as shown in Figure 4. Most of the disasters related to climate change are also interrelated, with one probably leading to the other; implying that the district was perennially at risk of natural hazards.

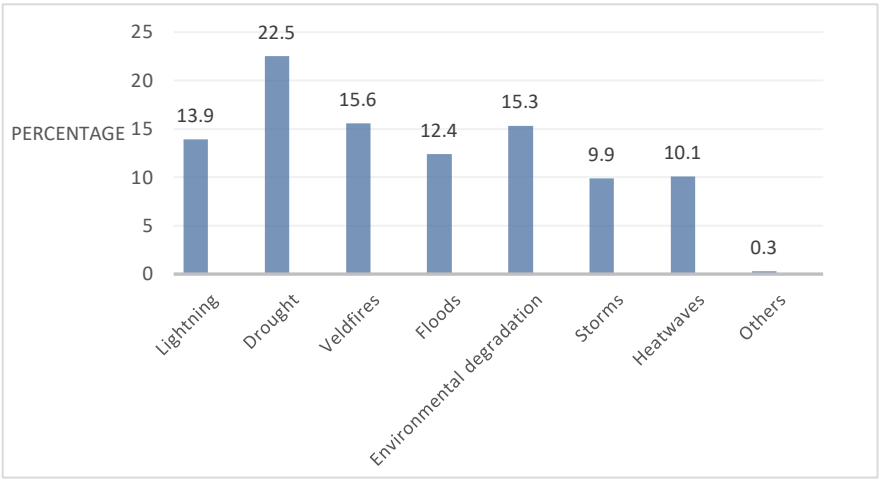


**Figure 4:** ***Most Common Hazards in Mhondoro-Ngezi District***
**Source:** Survey Data (2017)

Zimbabwe's Environmental Management Agency (EMA) showed that the occurrence of drought in Mhondoro-Ngezi District could be linked to environmental degradation and climate change, which have become synonymous with most natural hazards in the world. The same view is also supported by Mashizha et al. (2017): that the lack of understanding of climate change issues was rampant, hence the need to tailor agricultural practices to internalise these changes.

Elective office holders in the district hold the view that drought was one of the natural disasters that contributed to the aggravation of poverty in Mhondoro-Ngezi because it made it difficult for communal farmers in the district to increase their agricultural output. Photo 6 shows poor maize crop due to a drought in Mhondoro-Ngezi District during the time of the study.

**Photo 6: Poor Maize Crop Due to Drought in Ward 4**
**Source:** Field Survey Observation (2017)

Drought also led to livestock deaths. The Meteorological Department official had this to say:

> *"Climate change information, especially understanding about erratic rainfalls that often cause droughts, is very vital for this district, so the people should be conscientized about the need for coping and adapting to the negative impacts of climate variability and change, given that most of the rural livelihoods depend on climate and environmental dynamics."*

On the other hand, floods in the Mhondoro-Ngezi District were described as the most frightening, dangerous, destructive, and sometimes an unpredictable hazard. Floods were also associated with fatalities caused by lightning. It is imperative that the knowledge of hazards be imparted to the people so that they can prepare for mitigating measures against negative impacts associated with such hazards. The elective Member of Parliament (MP) for Mhondoro-Ngezi District put it aptly:

> *"Preparedness for natural hazards depends on political commitment, availability of resources and social support not on worry and level of awareness. So, the availability of knowledge alone cannot guarantee that populations will change their behaviours and adopt behaviours that support preparedness for disaster. What is important to realise, however, is that the knowledge of disasters in Mhondoro-Ngezi District can be a positive indicator of the possibilities that exist for future programming."*

For members of the community who are poor, it becomes problematic to replace livestock or even to rebuild their homes once they are destroyed by either lightning or cyclones. However, drawing from Adler et al. (2002), communities have a social obligation to take advantage of the political, social and human capital that come with their diversities to help each other attain better levels of livelihoods by enabling them bounce back in the face of environmental calamities.

Veld fires were also the cause of unprecedented destruction of farming fields in the district. One District Environmental Management Agency official revealed that due to dryness caused by droughts, the district was increasingly becoming vulnerable to the risk of veld fires. Veld fires cause immense ecological challenges, damaging the natural capital, animal habitats and forests; thus leading to the loss of assets and life to the surrounding communities. Data from the EMA showed that communities in Mhondoro-Ngezi have experienced immense and extensive ecological and material losses because of veld fires. According to the EMA records, veld fires destroy more than 3042ha of land annually.

**Photo 7: A Field Devoured by Veld Fires in Ward 11**
**Source:** Field Survey Observation (2017)

Most of the veld fires were caused by local hunters and those in search of wild honey as a source of livelihood. However, AGRITEX officials indicated that there were also natural fires that erupt, particularly in the Manhize Mountains. Veld fires normally take place towards the beginning of the rain season in October and November of each year.

**7. Most Vulnerable Populations to Disasters**

When a disaster occurs, it will not affect all the people in the same way as some people are more vulnerable to their impacts than others. Disparities in vulnerability emanates from the characteristics of individuals or groups in a community. In most cases, the poor are more vulnerable to the negative impacts than the well-off, while the less educated are also perceived to be more vulnerable to natural disasters than the educated ones. Similarly, the elderly are more vulnerable than other groups (Figure 5). Some scholars -- e.g., Ballesteros (2008), Donner et al. (2011), and Rufata et al. (2015) -- have posted similar results. Such vulnerability context was captured in one of the FGDs, as follows:

> *"The elderly will have lost most of their physical abilities, are often dependent on others for mobility as they have chronic conditions and also have insufficient or no income at all. For those elderly people staying alone, they might also not be aware of an impending disaster as they might not have access to the radio or print media. Unless someone makes an effort to make them aware, they are usually caught unaware."*

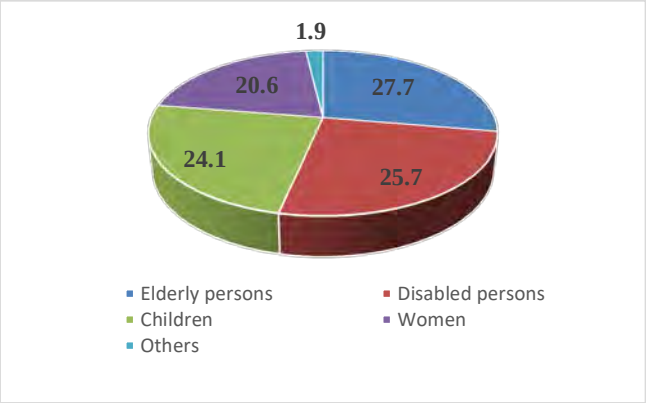


**Figure 5: Most Vulnerable Group to Disasters**
**Source:** Survey Data (2017)

Families headed by the elderly in the district were found to suffer most in the face of adverse weather conditions. This was because in most cases such families were physically constrained to deal with the shocks of drastic occurrences. The strength of a physical body is an important element in efforts to prevent and react to disasters. Hence, the pressure and release model interrogates the intersection between social vulnerabilities and the nature of a hazard. As a result, hazard directs attention to the conditions that make vulnerability risky, leading to susceptibility, and the causes generating these circumstances.

The results presented in Figure 5 show that 25.7% of the respondents were of the opinion that the disabled were more vulnerable to disasters than those without disabilities. Hemingway et al. (2008) argue that just like the elderly populations, the disabled also face similar challenges in reacting to disaster situations, as well as in recognising the signs of impending dangers. People with disabilities often require the assistance of family members and specialists to do their daily living activities. One of the traditional leaders stated:

> "*In times of disasters, it is often the case that the disabled groups are more at risk as they cannot quickly move away from danger. The fact that they require assistance from others also increases the vulnerability of those that care for them.*"

Drawing insights from the PAR model, it is conceivable that people living with disabilities are more vulnerable compared to those who are able-bodied. This is because physical disability limits the capacity to fend for oneself. Instead, one depends on others to carry out daily living activities and for basic livelihoods. Mugumbate (2014) argues that people living with disabilities are often neglected by policymakers and the arms of the government. Hence, they can be vulnerable to disasters because they are often marginalised even in DRR programming.

Also, the study showed that young children (24.1%) were also vulnerable to natural hazards. One of key informant concurred by saying:

> *"Young children are more vulnerable to natural hazards as they are too weak to escape from a natural calamity and sometimes do not get any information or warnings regarding the threat of natural hazards. Some children take shelter under the trees hence risking to be struck by lightning. Some attempt to cross flooded rivers and are swept away."*

Children were always the biggest victims because they do not have the resources to prepare for and prevent natural hazards as they mostly rely on adults. Hence, there is a need for communities, government departments, civil society and faith-based organizations to run child-centred DRR programmes at village or ward levels to educate children about disaster preparedness and management. This was befittingly put by the District Education Officer (DEO) for Mhondoro-Ngezi thus:

> *"Children are a massive resource in DRR and the more they are trained, the safer they and their communities become. They can be of great assistance during the warning phase as they can bring information about disaster risks home. Children can participate in hazard mapping and raising awareness through games and disaster preparedness brigades which can easily influence other children, parents and communities on how to ease disaster risks."*

However, it was found that in many instances that the adults neither sought children's views nor allow them to participate in disaster risk-reduction related activities. Children should be listened to, respected, and taken seriously on issues relating to DRR because they are equally important stakeholders in disaster preparedness and management.

## 8. Discussion

Natural hazards such as droughts and floods have devastating effects on agricultural fields, livestock, and nutritional gardens, as well as infrastructure such as bridges and roads that are in many instances washed away. Dube (2016) attributes the destructive effects of natural hazards partly to inadequate community disaster risk-reduction initiatives and alternative livelihoods. In this regard, local leaders from political, religious, social and economic sectors need to assume key responsibilities in protecting their own communities. Since natural hazards may lead to individual families or communities losing their livelihoods, sources of water, having acute food shortages, and ill-health at the macro level, this causes severe impact on the country's economy. As such, there is a need to invest more in mitigating the effects of natural hazards in rural communities to reduce vulnerability. This in turn will improve and strengthen local livelihoods.

## 9. Conclusions and Recommendations

Since the majority of respondents in this study acknowledged that natural hazards were indeed an area of concern for the community, the study concludes that programming for DRR in the district has a base upon which such activities can be kick-started or enhanced. This conclusion if based on the fact that awareness of challenges often makes individuals and communities to willingly participate in activities that ensure their safety.

According to the study findings, drought remains the most common problem in the Mhondoro-Ngezi District, exposing communities in the area to food shortages, and poor livelihoods. Such a situation has increased the district's vulnerability to further disasters such as veld fires. Additionally, as communities in Mhondoro-Ngezi District were aware that the elderly and the disabled are more vulnerable to disasters than other members of the community, this provides a ground for them to include such special populations and their needs in community development and DRR programmes and projects.

Further, as communities in Mhondoro-Ngezi District acknowledged that water harvesting through sandy boreholes in dry sand river beds, traditionally known as *mifuku,* was instrumental in dealing with droughts, which is the most common forms of disaster in their area. Implicitly, it can be concluded that the community has practical understanding of how they can address some of their challenges. In addition, the article showed that respondents have the knowledge of natural hazards in their areas and could easily document their severity. As such, they have been able to come up with mitigation measures to offset the negative effects of natural hazards on household livelihoods. Since drought is the most common hazard in Mhondoro-Ngezi District, the study recommends that the government should help the community to develop technologies of water harvesting so that people have safe and sufficient water for agricultural and domestic use. The government and its development partners should also help communities in their efforts to grow drought-resistant crops, provide requisite agricultural implements, as well as food processing technologies and help communities market their produce.

**References**

Adler, S. P. & S. K. Kwon. (2002). Social Capital: Prospects for a new Concept. *Academy of Management Review,* 27: 17–40.

Ballesteros, L. F. (2008). What Determines a Disaster? *Pesos,* Volume 54.

Blaikie, P. T., I. D. Cannon & B. Wisner. (1994). *At Risk: Natural Hazards, People's Vulnerability and Disasters.* London: Routledge Publishers.

Burchia, F. & P. Muro. (2016). From food availability to nutritional capabilities: Advancing food security analysis. *Food Policy,* 60: 10–19.

Carpenter, A. (2013). *Social Ties, Space and Resilience: Literature Review of Community Resilience to Disasters and Constituent Social and Built Environment Factors.* Atlanta, GA: Federal Reserve Bank of Atlanta.

Carter, M. R., P. D. Little, T. Mogues & W. Negatu. (2008). Poverty traps and natural disasters in Ethiopia and Honduras, *World Dev,* 35(5): 835–56.

Chambers, R. & G. Conway. (1992). Sustainable Rural livelihoods: Practical Concepts for the 21st Century. *Ecology and Society,* 11(1): 2. Discussion Paper 296, Brighton: IDS.

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches.* California: Sage Publications.

Deli, F. (2011). Opportunity and Necessity Entrepreneurship: Local Unemployment and the Small Firm Effect. *Journal of Management Policy and Practice,* 12(4): 39.

Donner, W. & H. Rodriguez. (2011). *Disaster Risk and Vulnerability: The Role and Impact of Population and Society.* Washington DC: Population Reference Bureau.

Dube, E. (2016). *Improving Disaster Risk Reduction Capacity of District Civil Protection Units in Managing Veldt Fires,* Bulawayo, Zimbabwe.

Food and Agricultural Organization. (2017). Zimbabwe's Natural Regions and Farming Systems.

Gross, S. R. (2012). *Exonerations in the United States, 1989 – 2012, Report by the National Registry of Exonerations,* University of Michigan Law School.

Helmore, G. & N. Singh. (2001). *Sustainable Livelihoods: Building on the Wealth of the Poor,* Bloomfield, Kumarian Press.

Hemingway, L. & M. Priestley. (2008). *Natural Hazards, Human Vulnerability and Disabling Societies: A Disaster for Disabled People?* Centre for Disability Studies, University of Leeds (UK).

Levin, R. & D. Weiner, (eds.) (1997). *No More Tears: Struggles for Land in Mpumalanga, South Africa*. New Jersey: Africa World Press.

Mapira, J. (2011). Urban Governance and Mismanagement: An Environmental Crisis in Zimbabwe. *Journal of Sustainable Development in Africa,* 13(6): 258-267.

Mashizha, T. M., N. Monga & M. A. Dzvimbo. (2017). Improving Livelihoods of Resettled Farmers through Development of a Knowledge Base on Climate Change in Mhondoro – Ngezi District, Zimbabwe. *International Journal of Sustainable Development Research,* 3(2): (18–26).

Mugumbate, J. (2014). *Persons with Disabilities in Zimbabwe,* Department of Social Work, Bindura University Press.

Niboye, E. P. & Ngwaru, F. (2020). The Need of Linking Local Community and National Disaster Risk Reduction Strategies for Effective Disaster Mitigation: Lessons from Zimbabwe. *Research on Humanities and Social Sciences.* www.iiste.org ISSN 2224-5766 (Paper) ISSN 2225-0484 (Online), 10(2): 2020.

Rufata, S., E. Tate, C. G. Burton & A. S. Maroof. (2015). Social Vulnerability to Floods: Review of Case Studies and Implications for Measurement. *International Journal of Disaster Risk Reduction,* 14(4): 470-486.

Twigg, J. (2001). *Sustainable Livelihoods and Vulnerability to Disasters: Disaster Studies Working Paper* 2, Benfield Greig Hazard Research Centre.

Wisner, B., P. Blaike, T. Cannon & I. Davis. (2004). *At Risk: Natural Hazards, People's Vulnerability and Disasters,* 2nd edition. London: Routledge.