

## **Social effects of natural disasters on small scale farmers in rural areas**

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### **Abstract**

Disasters have devastating impact on the livelihoods of small-scale farmers in rural areas. In many case, the small-scale farmers are mainly vulnerable to disasters due to their lack of resources to cope with them. This paper was aimed at exploring the social effects of natural disasters on small-scale farmers in rural areas. The study adopted a qualitative research approach and case study design. The study was conducted at Runnymede village in Tzaneen and 10 participants were purposively sampled to form part of focus group discussion. The data was collected until the level of saturation and analysed thematically using thematic content analysis. The study found that small-scale farmers have challenges in accessing their small-holding farms, others end up being homeless, displaced, experienced health related risk and some psychological effects as a result of disasters. The participants indicated that due to natural disasters, they were unable to access their small-holding farms. This is due to the fact that people in low-resourced and under-developed areas, with low socio-economic conditions are unable to build shelters that are strong enough to withstand heavy storm. Accordingly, the study recommends better infrastructure and drainage systems to deal with heavy rainfall and avoid floods.

**Keywords:** natural disasters, effects, small-scale farmers, displacement, health-related risk.

### **1. Introduction**

Natural disasters, in this study referring to floods, can occur anywhere and anytime in a year. On their path, floods have devastating effects on the livelihood and food security of community members, particularly small-scale farmers. By their nature, disasters cause damage to property, loss of human life, displacements, heightened poverty levels, and loss of means of production (Chapagain & Raizada, 2017). In as much as natural disasters are unpredictable in terms of their occurrence and extend of damage, rural people experience a great deal at the aftermath of natural disasters because the mainstay of their livelihoods, namely agriculture and livestock production get destroyed. The mammoth challenge is that after the of occurrence of natural disasters in different forms, rural communities require emergency intervention in the form of empowerment, survival and resilient skills (social skills) to protect them from second waves of the disasters; and such services are limited. Wells, Springgate,

Lizaola, Jones, and Plough (2013) weighs in by maintaining that the social impacts of natural disasters are not well recognised in the assessment of natural disasters in spite of their devastating impacts on the wellbeing of individuals. On that note, this study was aimed at exploring the social effects of natural disasters on small-scale farmers in rural areas.

## **2. Problem exposition**

Disasters knows no boundary as many people are exposed to their rampage. But those mainly affected to its effects are people in rural communities. In his thesis, Matlakala (2021) denoted that people in rural areas are mainly exposed to natural disasters. One of the reason is that, due to their low socioeconomic status, community members are unable to afford resources that they can use to warn them about the upcoming disasters (Zulqarnain, 2013). What should be underscored is the fact that those in rural areas depend on farming to eradicate poverty and deal with food security. It is for that reason that most community members have small-holding farms. Even that is the case, they suffer a big setback when hit by disasters, be floods, drought and/or field fires. In light of that, Campbell and Knowles (2011) reported that after experiencing Cyclone Nargis in 2008, Myanmar experienced floods with 63% of farmland affected. On the same breath, farming equipment and animal feed were destroyed as a result of the cyclone. On the other hand, Arnoldy (2010) underscored that due to floods, farmer in Pakistan lost herds of livestock. Even though the above authors see this as an economic blow, in rural areas, such loss is seen as not only financial blow but livelihood blow. This is due to the fact that most community members rely on farming for food security.

It is undebatable that some of the community members lose their breadwinners due to floods. Equally, small-scale farmers are not immune to loss of human capital, Zulqarnain (2013) bemoaned that due to floods, small-scale farmers not only suffer economic factors, they also loss their hardworking employees. As a result of the loss of the loved one, the remaining members in the family are unable to secure food security and thus exposed to malnutrition and other diseases. Not only that small-scale farmers lose their human capital, but they are also unable to access their small-scale holders due to floods. This can be largely to the fact that small-scale farmers in the rural areas have poor drainage system that leave their roads flooded (Rock & Corbin, 2007). Those who are fortunate to have better equipment are not prone to some challenges. For instance, Mamun, Huq, Papia, Tasfina and Gozal (2019) reported that during natural disasters, floods specifically, some small-scale farmers are experience psychological challenges such as depression and emotional disturbance. Depression was to be expected as small-scale holders prove to be milk and butter for community members in deprived communities.

## **3. Adopted methodology**

### **3.1 Research approach**

This study qualitative research approach in an attempt to gain a detailed understanding of the social effects of natural disasters on small scale farmers. The rational for

choosing the approach was due to its flexibility during data collection as participants are offered an opportunity to express themselves in detailed (Gill, Stewart, Treasure, & Chadwick, 2008; De Vos, Strydom, Fouché, & Delpont, 2011, Bless, Higson-Smith, & Sithole, 2013). It provide to be an effective approach, as participants (small-scale farmers) were able to vividly provide social effects of natural disasters on them and their community at large.

### **3.2 Research design**

The researchers opted for case study research design. This design was chosen due to its ability to provide researchers with a contextual and in-depth information (De Vos et al., 2011). Other author, enunciated that case study design is effective when one attempt to understand how individual interpret and give meaning to their situation (Simons, 2009) in this instance natural disasters. It is worth noting that case study design can be operated within exploratory or descriptive or even explanatory (Yin, 2014). However, in this study, the researchers used case study design operating within exploratory design. The rational for choosing exploratory design is that it provided researchers with the ability to answer the “what” question (Neuman 2006; de Massis & Kotlar 2014). In this study, the question was, “what are the social effects of natural disasters on small scale farmers”.

### **3.3 Sampling technique and size**

The researcher opted for purposive sampling technique in order to sample small-scale farmers at Tzaneen Municipality. The municipality was chosen due to its vulnerability to natural disasters as depicted by Municipality (2014) and Shokane (2017) in their studies. In light of that, the researchers purposively sampled ten (10) participants who practices small scale farming at Runnymede village in Tzaneen Municipality. When using a purposive sampling, one should be mindful of fair selection of participants. It is for that reason that Greeff (2015) advised that the researcher should have an exclusion and exclusion criteria developed and be in line with the study aim. On that score, the study included participants who had or participate in activities at a small-scale plot and residing in Runnymede Village. Those who did not poses small-scale farming and/or residing at Runnymede Village were excluded in the study.

### **3.4 Data collection methods and analysis**

Given that this was an empirical paper, the data was collected through semi-structured focus group discussion. The researchers opted for focus group discussion as it is less expensive and allows researchers to look beyond the facts (Mansell, Bennett, Northway, Mead, & Moseley, 2004). This method allows or encourages participants to share in-depth information with other participants on the group. Moreover, since the data was collected during the pandemic, Coronavirus (Covid-19), the researchers adhered to health protocol during the data collection. Members who participated in the focus group discussion maintained 2 meters social distance, sanitized and they were all wearing masks throughout the proceeding. Moreover, the researchers received ethical clearance from Turfloop Research Ethics and permission to collect data from Limpopo Department of Social Development Research Ethics Committee.

The data collected in this study was analysed thematically using Thematic Content Analysis (TCA). Researchers used TCA due to its ability to identify the emerging themes from the transcripts (O'Leary, 2014). From this, the researchers used the themes developed to provide social effects of natural disasters on small-scale farmers.

#### **4. Findings and discussion**

The findings that emerged during data collection are presented herein. In order to safeguard the identity of the participants and uphold the ethical principle of confidentiality, the researchers used pseudonyms, that is, Participants, instead of names of the participants. The findings are infused with the discussion.

##### **4.1 Inaccessibility to their small-holding farms**

As already indicated that natural disasters can happen anywhere and anytime, small-scale famers are not immune to the devastating disasters and repercussions. After the occurrence of natural disasters, small-scale farmers are unable to access their farming plots as natural disasters such as floods, earthquakes and cyclones would have destroyed their road infrastructure. These are corroborated by earlier findings released by United Nations Framework Convention on Climate Change [UNFCCC] (2014) which underscored that agricultural equipment, roads and bridges which are constructed in the plot get destroyed by natural disaster. To be precise, floods serve as obstacle to small-scale farmers that prevent them from accessing their small-holder farms. The following assertions give more insight

*"Floods leave us with damaged roads and as a result it makes it challenging for us to access our farms."* (Participant 8, Small-scale farmer, FGD)

In the same vein, another small-scale farmer indicated that:

*"Natural disasters destroy our crops, houses, power stations and roads and other infrastructures. With regard to the roads, that makes it difficult for us to access our plots, see the extent of the damage and plan what to do to improve the situation or recover."* (Participant 10, small-scale farmer, FGD)

As already indicated that rurality on its own make individuals vulnerable to natural disasters, the occurrence of such disasters adds to their burdens. The above findings show that as a result of floods, small-scale farmers have a challenge in accessing their small-holding farms, making it difficult for them to feed their families. Eventually, inaccessibility to small-holding farms have indirect social effects such as poverty and increased unemployment as most people are likely to lose job as a result of poor production.

##### **4.2 Homelessness**

There is no doubt that natural disasters – earthquakes, floods and cyclone, leave people homeless. Therefore, the severity of such an effect is not consistent, as the poor are mainly the ones who are left homeless as a result of natural disasters (Gaillard, Walters, Rickerby, & Shi, 2019). The researcher is quite aware that there are poor people who

are without shelters, which is not the case here, as the researcher specifically refers to those in rural areas who lost their shelters as a result of a natural disaster (floods). Not so long ago, in Southern African countries - Zimbabwe, Mozambique and Malawi, cyclone Idai destroyed infrastructures in those areas, leaving community members homeless (Chatiza, 2019). On that scale, those who lost their houses, seek assistance from their relatives and community members while their homes were under repair. One of the small-scale farmers stated that:

*"We were affected by storms as they blew roofs of our houses away. Others (houses) collapsed because they were built using clay cricks that were not strengthened or hardened in kilns, hence they (houses) were not strong enough to withstand the storm."* (Participant 8, Small-scale farmer, FGD)

The ongoing effects of floods and cyclones leave those under-resourced and under-developed communities homeless. In this study, it was confirmed that as a result of natural disasters, community members are left homeless. This is due to the fact that people in low-resourced and under-developed areas, with low socio-economic conditions are unable to build shelters that are strong enough to withstand heavy storm. Therefore, in the aftermath of natural disasters, community members seek assistance from their relatives who may not have experienced the same hardship to find where to squat. Local people used proverbs such as *"bana ba motho ba ngathelana hlogwana ya tsie"* which gave an indication that people have to share the little that they have even when faced with natural disasters that left them homeless.

### 4.3 Displacement

Over the past years, the concept of displacement was due to conflict and human right violation. But recently, as a result of global warming and climate change, people are forced to leave their homes, countries, and communities due to the occurrence of natural disasters (Ferris, 2008). This was the case in this study as community members indicated that floods have caused them to temporarily leave their homes as a result of cyclones and floods. One small-scale farmers shared that:

*"You see when floods swept our houses, we had to relocate. We had to move to the community hall and some of our family members got displaced to far areas and we were in the state of confusion during the disaster. We were allowed to return when it was deemed safe for us to return to our homes, though some never came back."* (Participant 1, Small-scale farmer, FGD)

What should be underscored is that natural disasters result in the displacement of people. During crises caused by disasters, people move to any place as long as it is safe; hardly do they check other family members. On that score, Yonetani and Holladay (2012) reported that 42 million people in 2010 and 15 million people in 2011 were displaced due to sudden natural disasters (earthquake, floods and cyclones) as recorded by International Displacement Monitoring Centre. In those numbers, Asia and Africa emerged as the worst affected continents (Yonetani, & Holladay, 2012). With that in mind, the common denominator with these two continents is that they have a larger population, with Africa having many underdeveloped countries. In reaffirming the above assertion, almost two decades ago, Rasmussen (2004) reported

that poor countries had a larger population with weak infrastructure that makes them more susceptible to the rampage of natural disasters. This was later evident with the recent event; Cyclone Idai which hard-hit Zimbabwe and due to its poor and/or weak infrastructure about 51 000 people were displaced (Chatiza, 2019). This goes on to show that natural disasters, precisely floods, cyclones, earthquakes, and hurricanes cause a social disruption and as a result families are dislocated. This is due to the fact that when disasters erupt, the evacuation systems employed by people cause separation between and among families. The cause could be trimmed down to the fact that when disaster rescue systems are employed, they randomly ensure that everyone is put to safety disregarding who belongs where. In the process, many families may struggle to reunite.

#### 4.4 Health-related risks

When disasters such as floods erupt, water sources get contaminated and, in many instances, destroyed. As such, diseases such as malaria, cholera and diarrhoea are inevitable (World Health Organization, 2014) and have negative effects on flora and fauna. In terms of drought, (Chineka, 2016) conducted a study in Chiva South, Zimbabwe. In her study, Chineka (ibid) found that during drought, cattle are likely to catch foot and mouth disease. This goes on to show that natural disasters, whether cyclones, floods or drought, result in no production. This shows that community members experience health related risks directly and indirectly. In this study, community members experienced primary health related risk, that is, contaminated water, as a result of floods. However, the health risk on livestock is outside the scope of this study. Some of the participants, small-scale farmers, stated that:

*"You see the pampers there, during floods, those waste get eroded to the river and we depend on the river for our household's water as well as irrigation." (Participant 8, Small-scale farmer, FGD)*

Another small-scale farmer said:

*"We once had a heavy rainfall, afterwards our children had diarrhoea as they drank water from the tap. Others claimed that the water was brownish that is why we had stomach cramps." (Participant 10, Small-scale farmer, FGD).*

In the ongoing, natural disasters also leave footprints of health-related risks such as water borne and vector borne diseases and community members are equally susceptible to these risks. From the findings, the community members indicated that due to floods, with poor water purification facilities, water got contaminated and this affected their health and livelihoods. During floods, water-borne diseases becomes pandemic and that compelled community members to seek medical help, and those who have means sent their members to private hospitals. Indirectly, such occurrences affect production and livelihood eventually.

#### 4.5 Psychological effects

The psychological effects in the aftermath of natural disasters are unavoidable and stress, depression, and post-traumatic stress disorder become common and affect

people differently. Thus, Mamun et al. (2019) reported that after experiencing a disaster, whether man-made or natural, women have been seen as the most prone to showing signs of depression and emotional disturbance. The depression that women experience can be due to the responsibility that they have to care for their children while ignoring their own pains and losses. However, that does not mean men are immune to depression or mental disturbances. Men experience depression as they think of the ways to feed their children and other family members (Emslie, Ridge, Ziebland, & Hunt, 2006). Be that as it may, Mamun et al. (2019) reported that women have shown that they handle emotionally charged issues much better than men and they think on the long term basis more than men who think more on the present. Thus, with depression and stress from natural disasters, community members indicated that they endured more responsibilities as they had to look at their losses (dead crops and livestock) and also focus on feeding their family.

*"Floods and cyclones leave us stressed and with depression. We find ourselves perplexed as to how will we feed our families after our crops washed away and livestock drowned or died of diseases as the result of such calamity."* (Participant 9, Small-scale farmer, FGD).

The fact that natural disasters by their nature are disruptive leave scars on the survivors. In this study, it was evident that natural disasters left community in the state of shock. It is during this time, that small-scale farmers need the assistance of professionals, be it social workers or psychologists. However, it should be noted that in the absence of professionals, community members have relied on, *Ndunas* as a source of strengths and support to assist them bounce back to their normality.

## 5. Conclusions and recommendations

The researchers aimed to explore the social effects of natural disasters on small-scale farmers. This aim was achieved as the study established the effects of natural disasters were genuine and visibly affecting small-scale farmers in their communities. The participants indicated that due to natural disasters, they were unable to access their small-holding farms. The researchers concludes that due to destroyed bridges and roads, community members (small-scale farmers) were unable to access their small-holding farms. Accordingly, the study recommends better infrastructure and drainage systems to deal with heavy rainfall and avoid floods.

Again, it was confirmed that as a result of natural disasters, community members were left homeless. This is due to the fact that people in low-resourced and under-developed areas, with low socio-economic conditions are unable to build shelters that are strong enough to withstand heavy storm. The study concludes that community members are left homeless as their houses could not withstand heavy storm. As such, the researcher recommends that social workers should be active in disaster management preparedness, to use their assessment skills to identify those in need prior to natural disasters.

In this study, it was found that community members indicated that due to floods, without water purification facilities, water were contaminated, thereby compromising their health and livelihoods. The researchers concludes that community members were prone to diseases such as cholera which pushed them to seek medical assistance.

As a result of that, the researcher recommends that community members should be educated about diseases that come with natural disasters such as floods. Moreover, public hospitals personnel should be increased and should offer same quality services offered in private institutions.

The fact that natural disasters by their nature are disruptive, there is no denying that they leave scar on the survivors. In this study, it was evident that natural disasters left community in the state of shock. In the absence of professionals, community members have relied on *Ndunas* as a source of strengths and support to assist them bounce back to normality. The researcher concludes that community members (small-scale farmers) experienced posttraumatic stress disorder after natural disasters. As such, it is recommended that social workers should work with psychologists to provide counselling to the victims and survivors of natural disasters.

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