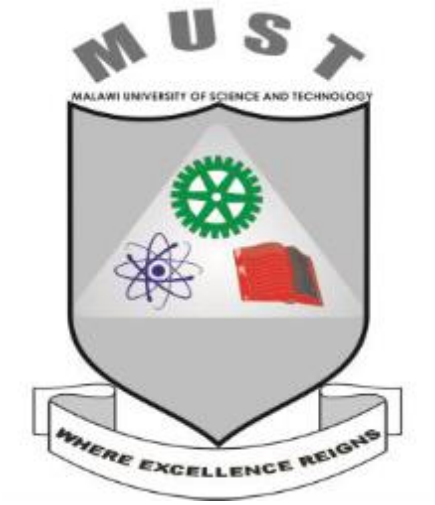


ASSESSMENT OF GENDER-BASED VULNERABILITY TO FLOOD RISK IN T/A MAKHWIRA IN CHIKWAWA DISTRICT, SOUTHERN MALAWI

HYSON JEKE

Thyolo, Malawi

Dissertation submitted to Ndata School of Climate and Earth Sciences of the Malawi University of Science and Technology in partial fulfillment of the requirements for the Bachelor of Science degree in disaster risk management.

July, 2021

DISSERTATION APPROVED BY:

SUPERVISOR:

Mrs. T. Mtewa Signature: 

ASSESSOR:

Title, Initials, Name Signature: _____

DISCLAIMER

This document describes work undertaken as part of a programme of study at Ndata School of Climate and Earth Sciences of the Malawi University of Science and Technology. All views and opinions expressed therein remain the sole responsibility of the author(s) and do not necessarily represent those of the School.

DECLARATION

I Hyson Jeke declare that this work is my own and that it has never been submitted to Ndata School of Climate and Earth Sciences or any other institution for academic purposes. All information sources used in this paper have been properly acknowledged

Signature:……

Date: 19th July, 2021

COPYRIGHT STATEMENT:

This copy of the dissertation has been supplied on condition that anyone who consults it is understood to recognize that its copyright rests with its author and that no quotation from the dissertation and no information derived from it may be published without acknowledgment.

ABSTRACT

Vulnerabilities based on gender are relevant in disasters. Women and men are vulnerable to disasters in different ways, this is due to; social and economic reasons and pre-existing gender relations with the same social group. As a result of these factors, women and men tend to be exposed differently to disaster risk. A mixed-method design was used to collect qualitative and quantitative data which included 53 households and 2 key informant interviews and focus group discussions. The study was carried out in Chikuse Traditional authority area in Chikwawa, Malawi to explore the role of gender in shaping men's and women's vulnerabilities. It was found that women are more vulnerable, due to the following reasons; unequal distribution of power and workload, unequal opportunities which include inadequate education and leadership opportunities, unequal access to resources due to poverty, women have lower incomes and are economically dependent than men. Mostly single mothers are the poorest people in this area. The above factors are derived from cultural issues that lead to gendered-based inequality thereby developing a complex situation for women such that at the time of a disaster there are more vulnerable than men. In this case, women are exposed more to disasters than men. The study concludes that in this area gender is not mainstreamed in disaster risk management rendering inequalities in disaster issues, so policymakers must consider the important role of gender in determining different levels of vulnerabilities to develop appropriate adaptive strategies that address gender-differentiated vulnerabilities.

ACKNOWLEDGEMENTS

First and foremost, I want to express my gratitude to the Almighty Father for how far He has carried me; without Him, I would not have made it. His love, righteousness, mercy, and glory have kept me on the correct track through many trials.

I would like to express my sincere gratitude to my supervisor, Mrs. T. Mtewa for her support, comments, suggestions, and guidance throughout my project.

Also, I would like to express my deepest gratitude to all the 2021 DRM 4 classmates and staff of Ndata School of Climate and Earth Science, for imparting valuable lessons from their extensive experiences. To my NSCES family especially, who have been with me in this journey and kept me motivated every step of the way.

Lastly, I also express my eternal gratitude to my family (Dad, Mom, Wathu, Yankho, Clement, Glory, Bridget, and Frezer) for always being my foundation and ceaseless source of strength. Your unconditional love and endless support and prayers gave me the reason to face all my challenges with a smile.

TABLE OF CONTENTS

Contents

1. CHAPTER 1: INTRODUCTION 1
1.1 background 1
1.2 Problem statement 2
1.3 Main and specific objectives 3
1.4 Research Questions 3
1.5 Significance of the study 3
2. CHAPTER 2: LITERATURE REVIEW 5
2.1. Gendered Impacts of Natural Disasters 5
2.2. The Malawi case of cyclones idai in nsanje district 5
2.3. Flood impacts in Malawi 6
2.3.1. Mortality and Numbers Affected 6
2.3.2. Education 7
2.3.3. Livelihoods 7
3. CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY 9
3.1 study area 9
3.2 Study design 11
3.3 Sample selection and size 11
3.4 Materials and method 12
3.5 Data analysis 12
4. CHAPTER 4: RESULTS AND DISCUSSIONS 13
4.1. Introduction 13
4.2. Results of the study 13
4.2.1. Demographic information 13
4.2.2. Access to general disaster information 15
4.2.3. Access to financial resources 19
4.2.4. Root causes of gendered-based vulnerability 20
4.2.5. Gender mainstreaming in disaster risk reduction 20
4.2.6. Relationship between gender, and vulnerabilities to flooding risk. 20
4.2.7. Coping strategies to flood risk 21
4.2.8. The importance of gender analysis in disasters 21
4.3. Discussion of the results 21

5. CHAPTER: 5 CONCLUSION AND RECOMMENDATIONS 25
5.1. Conclusion 25
5.2. Recommendations 25
6. REFERENCES 27

ACRONYMS/ABBREVIATIONS

DRR: Disaster Risk Reduction

SPSS: Statistical Package for Social Science

UNDP: United Nation for Development Programmes

UN: United Nations

MUST: Malawi University of science and technology

T/A: Traditional authority

UNFPA: United Nations Population Fund

IFRC: International Federation of Red Cross and Red Crescent Societies

LIST OF FIGURES

Figure 1. Showing flood-prone areas of T/A Makhwira in chikwawa district..... 10
Figure 2. Showing the results differences between males and females on the level of education attended..... 14
Figure 3. Showing the results differences between males and females on work performance at household level.....15

LIST OF TABLES

Table 1. Showing the number of male and female participants involved in the study..... 13
Table 2. Showing results on access to disaster information through the use of phone 15
Table 3. Showing results on access to disaster information through the use of radio 16
Table 4. Showing results on access to disaster information through the use of television 17
Table 5. Showing access to leadership opportunity on disaster risk management activities 17
Table 6. Showing those who took part in decisions of disaster risk management in the community..... 18
Table 7. Showing access to financial resources between men and women…….19

1. CHAPTER 1: INTRODUCTION

1.1 background

Gender refers to dynamic social processes deeply rooted within society that lead to socially constructed gender roles, identity, gender norms, learned behavior, and attributes considered appropriate for men and women (WHO, 2015). A few countries, including Germany, Australia, or Nepal, have recognized a third gender, i.e. a person who considers their gender identity as neither male nor female (Carpenter, 2013; Knight and Bochenek, 2012; Nandi, 2013). Gender shapes the relationships between women and men in terms of their personality, life chances, and opportunities and thus is, like race and class, a social relationship of difference and inequality (Alway et al. 1998; Enarson 2012). All countries struggle with potential extreme hazards (earthquakes, tropical cyclones, and floods), but some are more vulnerable than others(UNDP, 2013). In January 2015, Malawi experienced the most devastating flooding to ever hit the country. A vulnerability approach to disasters would suggest that inequalities in exposure and sensitivity to risk as well as inequalities in access to resources, capabilities, and opportunities systematically disadvantage certain groups of people, rendering them more vulnerable to the impact of natural disasters(UNDP & UNDP, 2016). Both natural disasters and gender relations are socially constructed under different cultural, political, and socio-economic conditions that vary within and between societies across the globe and have complex consequences for women, men, and others (Enarson, 2000). Although there is a lack of large-scale quantitative evidence, many authors (Swain et al. 2007; Ariyabandu 2009; Enarson and Dhar Chakrabarti 2009; Neumayer and Plümper 2007; Ginige et al. 2014) address the disparity of women's and men's vulnerability to natural hazards and subsequently the gendered impact of these events. The social world, within with natural disasters occur, is shaped by gender (Enarson, 2000). Gender ideologies often reduce women's access to resources, opportunities, and power (Yumarni et al. 2014). This increases their vulnerability and consequently intensifies the adverse impacts of natural disasters on women. Women are not a homogenous group and it would be not correct to assume that all women experience the same hazard event in the

same way (Bradshaw, 2013,). One can say that generally speaking "women as a group have fewer opportunities than men as a group." (McDowell, 1999) Due to women's higher vulnerability to natural hazards in many societies around the world, 16 disaster researchers in the field of gender most often focus on women in disasters, and thus practitioners quickly tend to read „gender" as „women" (Enarson 2012). But "it is not female gender itself that marks vulnerability, but gender in a specific situation" (Wisner et al. 2004).

1.2 Problem statement

There has recently been a critical shift in the mainstreaming of gender perspectives into DRR: from a women-focused approach to a gender-focused approach, based on the premise that the roles and relationships of women and men in disaster risk reduction should be analyzed within the overall gendered socio-economic and cultural context. On top of this shift, the strategic focus of disaster management has changed from reactive disaster response to long-term proactive disaster risk and vulnerability reduction, where gender and disaster risk reduction are considered necessary to achieve sustainable development. At the global level, available information shows that efforts to promote gender equality in disaster risk reduction have focused on advocacy and awareness-raising, along with support for policy changes and gender mainstreaming in inter-governmental processes (UNISDR, 2012).

Malawi being a patriarchal society, with men holding the majority of power within the family unit. Women are more likely to be responsible for household upkeep and child-rearing, whilst men are more likely to be the family's earners, resulting in disparities in their vulnerabilities in times of disasters. Up to date, there is insufficient precedent guidance and practical understanding on how governments can make disaster risk reduction interventions gender-sensitive. (UNISDR, 2012:2013). In Malawi policies and strategies focusing on disaster management and disaster risk reduction have also come into place over the past years. Unfortunately, commitment to gender issues is rarely stated explicitly; rather, it can only be assumed to be an implicit part of larger commitments to the Hyogo Framework for Action 2005-2015 (Mukuna, 2013). Malawi recognized the importance of gender issues in their national disaster risk reduction

reporting to UNISDR, although meaningful progress is far from adequate. Thus, there was a need to conduct a study that assessed gender vulnerabilities to flood risk to provide important data that could help the holistic perspective of disasters that considers the natural processes on one hand and human activities, i.e. political, cultural, economic, and social processes in the pre-disaster context, on the other hand.

1.3 Main and specific objectives

This study aimed at assessing gender-based vulnerability to flood risk of people living in chikuse community in Chikwawa District. The study has the following specific objectives

a. To analyze root causes of gendered-based vulnerability to flooding risk.
b. To examine the relationship between gender, and vulnerability to flooding risk.
c. To investigate whether gender is mainstreamed in disaster risk reduction.

1.4 Research Questions

The study answered the following questions:

a. What are the root causes of gender-based vulnerability to flooding risk?
b. What is the relationship between gender, and vulnerability to flooding risk?
c. Why is gender analysis essential in disaster risk management?

1.5 Significance of the study

Understanding how gender relations shape women's and men's lives are critical to disaster risk reduction (DRR). This is because women's and men's different roles, responsibilities, and access to resources influence how each will be affected by different hazards, and how they will cope with and recover from disaster(Neumayer & Plümper, 2007). Unequal power relations between women and men mean that, despite the incredible resilience and capacity for survival that women often exhibit in the face of disaster, they also experience a range of gender-specific vulnerabilities(Ciampi et al., 2011). Therefore the results of the study will help to reduce the vulnerabilities that are caused by gender as gender equality will be enhanced and practiced throughout Malawi. This study will also be important to all disaster risk practitioners both governmental and

non-governmental organizations such that roles, responsibilities, and access to resources are equally provided to both men and women.

2. CHAPTER 2: LITERATURE REVIEW

A systematic literature search was undertaken to identify articles, reports, books, and research that address the interlinkage of gender and vulnerability.

2.1. Gendered Impacts of Natural Disasters

Natural disasters have immediate implications, therefore international statistics often focus on physical impacts evaluated in terms of fatality, injury rate, and material loss (EM-DAT, 2014; Fothergill, 1998). If more women than males die in natural catastrophes, this would be the most evident evidence of women's higher sensitivity to natural hazards. Various authors (notably Ikeda, 1995 and Pincha, 2008) address this topic based on case studies, despite the fact that accurate data disaggregated by sex is still mostly unavailable (Mazurana et al. 2011). Ikeda (1995) discovered that women aged 20 and up were four to five times more likely than men to perish in the 1991 Bangladesh Cyclone. The reasons for these disparities were first linked to gender conventions that confine women to their houses, preventing them from leaving without male permission. Furthermore, their child-caring responsibilities and traditional long sari clothes hampered quick movement and retarded their escape, particularly in water. Female malnutrition and ill health are also significant contributors to this (Ikeda, 1995). In this regard, the case study on the 2004 Indian Ocean Tsunami is especially instructive.

Men may be more likely to die in natural catastrophes in specific circumstances. Klinenberg's (2015) study on the 1995 Chicago heatwave, where age-adjusted death rates demonstrate that men were twice as likely to die as women, despite experts assuming greater female mortality rates, is relevant in this context. Klinenberg's findings were linked to race, class, ethnicity, neighborhoods, social ties, violence, and poverty in a complex way.

2.2. The Malawi case of cyclones idai in nsanje district

Between March 5 and 8, 2019, heavy rains brought by Tropical Cyclone Idai fell on Malawi, causing major flooding over southern Malawi. CARE Rapid Gender Analysis Malawi – Nsanje District Cyclone Idai flooding, 2019 found that 868,900 people were affected, with 86,980 displaced. The Nsanje district is one of the hardest hit, with women and single mothers' in particular reporting difficulty acquiring basic necessities and constructing shelters, putting them in danger of sexual exploitation. Negative coping

techniques were also found, such as some women bartering sex for relief products and girls engaging in prostitution to obtain money for exercise books, school fees, and clothing. Again lack of lighting at night, and at washrooms, toilets, and travel to fetch firewood, water, and food have further increased risks to sexual violence and exploitation particularly for women and girls, and undermining their dignity (MALAWI GOVERNMENT, 2019). Furthermore, due to food shortages, girls and women, particularly pregnant and breastfeeding moms, reported having decreased access to highly nutritious food. Some women and girls reported that they are discriminated against, especially while they are menstruating because they generate foul body odor due to not bathing, and thus have specialized needs such as clothing, sanitary pads, and underwear for menstrual hygiene and (UNFPA, 2019).

2.3. Flood impacts in Malawi

2.3.1. Mortality and Numbers Affected

278 people were killed in the 2015 floods, with 15 out of 28 districts declaring a state of disaster, and 230,000 people displaced. 56% of those displaced were female (compared to 51% of the overall population) and 55% were under 18 (compared to 51% of the population). 2.5% of the displaced population were pregnant women, and 5.9% were breastfeeding mothers. 4.6% of the displaced population were single women who were heads of their households (MALAWI GOVERNMENT, 2015). In 2019, 60 people were killed as a result of Cyclone Idai and 672 people injured. 868,900 people were affected overall, with 76,831 people displaced. Of those displaced, 59% were female, and 58% were under 18. 5,136 pregnant and lactating women were affected. 11% of 866 affected households in the four worst-hit districts were headed by single women, compared to 3% headed by single men. Interviews identified ways in which gender norms affected women's vulnerability to the floods; access to warning information about disasters, which is often distributed over the radio or mobile phones, is limited for women, as men tend to control these items. Men also tend to be considered household decision-makers, which can put women at risk. In some cases, women remain at home even when floodwater reaches dangerous levels, because their husbands have decided not to evacuate, or women have decided to wait for their husbands to return before leaving. Despite this, in many cases it

is women who are more likely to be at home when floods occur, meaning they take on the responsibility for evacuating their family to safety (UNFPA, 2019).

2.3.2. Education

The 2015 floods and Cyclone Idai both had significant impacts on children's education. 200,000 children were estimated to be affected by the floods in 2015, with 461 public sector schools damaged, 97% of which were primary schools. 104 out of 174 were being used as IDPCs and 77,134 children were affected in the four districts worst-hit by Cyclone Idai (Nsanje, Phalombe, Chikwawa, and Zomba) (MALAWI GOVERNMENT, 2015). The number of children whose education was temporarily disrupted is not disaggregated, but data on enrolment for Malawi indicates a sharp drop in enrolment between primary and secondary level education: in 2009 Malawi had a net enrolment rate of 98% for girls and 94% for boys at primary, yet only 25% for girls and 27% for boys at the secondary level. There were some reports (not quantified) that children were dropping out of school and engaging in child labor because of the floods. Girls are also more likely than boys to be withdrawn from school to support their families with domestic and agricultural work, including taking on caring roles for younger children or sick relatives (UNFPA, 2015).

2.3.3. Livelihoods

90% of women (and 80% of men) are engaged in agriculture, a sector that accounts for one-third of Malawi's GDP (UN, 2015). Agriculture in Malawi is extremely vulnerable to the impacts of hazards; floods cause average annual GDP losses of 1.43%. There is some evidence that women farmers lost 44% more acres of agricultural land than their male counterparts. Women's livelihoods in Malawi are less resilient than men's, with female-headed households particularly vulnerable to being pushed further into poverty by disasters. Poverty in Malawi is gendered, with women earning an estimated 50% and 71% of what men earn in the informal economy and from smallholder agriculture. Women's low resilience is attributable to several factors explored in research including limited access to resources (draught animals, mechanized transport), lack of land ownership, limited assets, and limited capital to invest in inputs, resulting in a productivity gap of 25% between men and women. Even in non-emergency periods, women report

having to sell their goods at a lower price than men, and some women cannot travel to the market because of gendered social norms restricting women's mobility. Those with lower incomes and less social capital reported being unable to recover their livelihoods after a disruption; they were often pushed into negative coping strategies (UNFPA, 2015).

3. CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

In this chapter, I will present the methodological approach chosen to address the research objective and specific objectives presented in the previous chapter. I will firstly present the description of the study area seconded by the research design, and then give an overview of the research process in terms of planning the study (participants recruitment) and conducting the research (data collection). But also how I have managed and analyzed the data.

3.1 study area

The study was conducted in Group Village Headman Chikuse of Traditional Authority Makhwira in Chikwawa District. It comprises three very close villages namely; Wilson, Gusu, and Chikuse. Chikuse is the main community that is hit by floods almost yearly. This area is located along the Shire River and gets flooded due to several rivers pouring their water in this Shire River. Among these rivers is Mwanza River. The area has an altitude of 100m above sea level or below. The land is almost flat with several river tributaries.

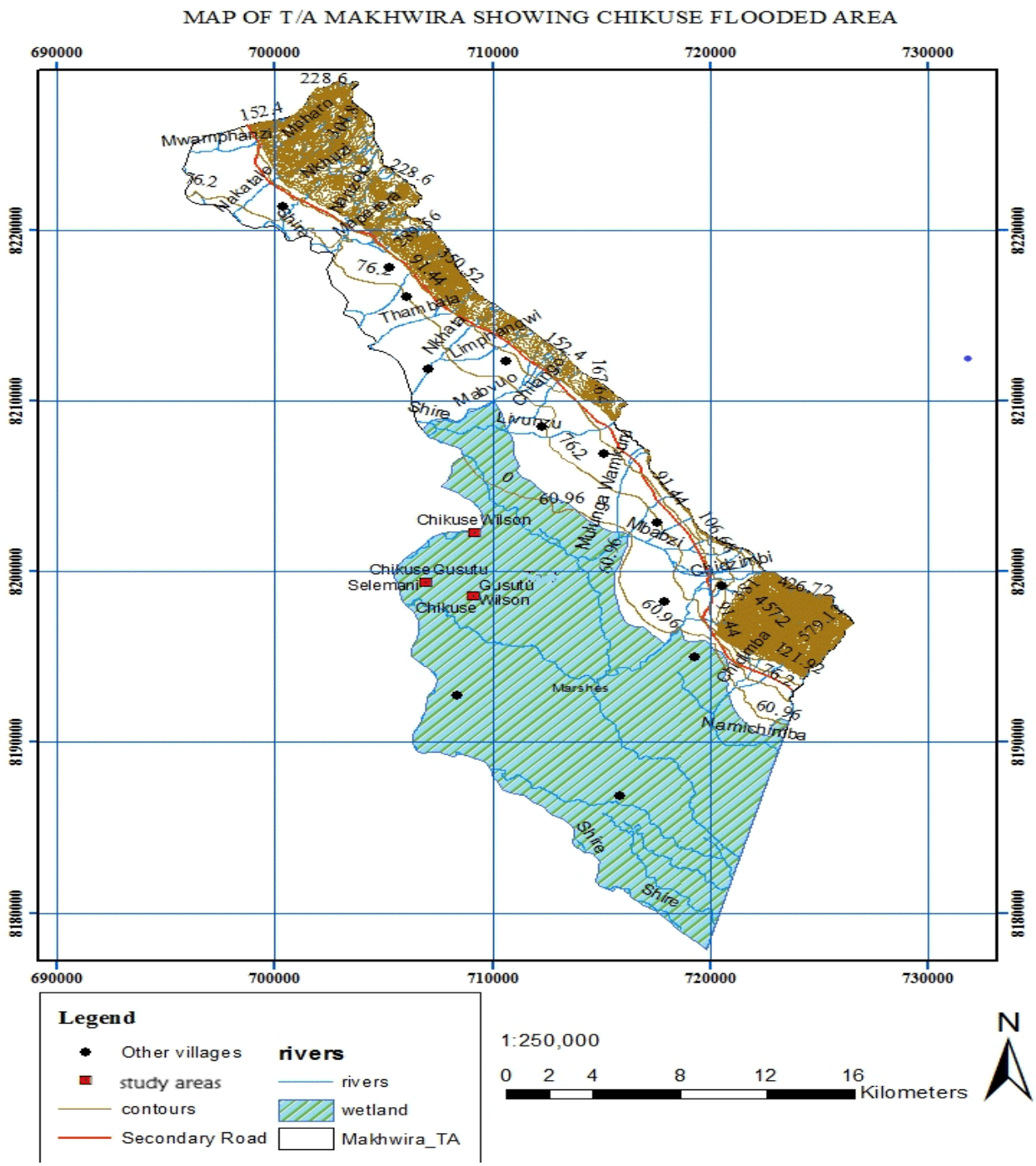


Figure 1. Showing flood-prone areas of T/A Makhwira in chikwawa district

3.2 Study design

A descriptive study design was used in this study whereby both quantitative and qualitative research methods were used. In the quantitative approach, both structured and open-ended questionnaires were used to collect the data at the household level. This was intended to obtain accurate and reliable information from those that are vulnerable to floods upon knowing that they are having flood experience than any other whereas in the qualitative approach, data were collected through interviews with key informants and focus group discussions using a checklist and this was done at the community level. Key informants involved in this study comprised critical players that have a role in the management of floods at the community and district levels.

3.3 Sample selection and size

In this study, the sample size was calculated using the proportions of the participants as follows; $n = Z^2(P)(1 - P)/e^2$ Where n is the sample size; Z is the value of a normally distributed standard variate which for a 90% confidence interval takes on the value of 1.645. P is the proportion of the participants with the attribute understudy out of the total population in T/A Makhwira. In this case, the population is unknown, then P= 0.5. e is the allowable error or the desired level of accuracy. This was set by the research. I took 11% as an allowable error in this study.

The sample size of 55 was adopted with 89% accuracy implying that the sample size is the true representation of the population size.

In this case, 55 participants were included in the study (53 households and two key informant interviews). Individual respondents were obtained using a multi-stage sampling technique. Firstly villages that are mostly affected by floods were selected. These villages were Wilson, Gusu, and Chikuse, then it was followed by a simple random sampling procedure to select households from the chosen villages. In each household chosen a single head was given a questionnaire to answer. The adoption of a simple random procedure was based on the fact that the population was homogeneous in which all members were identical such that it makes generalizations about the large population. In this case, it makes it easy to obtain an accurate representation of the larger population.

3.4 Materials and method

For triangulation, the researchers used both quantitative and qualitative methods. The idea behind triangulation is that any bias in a data source, investigator, or method would be negated when utilized in conjunction with additional data sources, investigators, and procedures. The data for this study came from both primary and secondary sources. Interviews, focus group discussions, and questionnaires were used to collect primary data. Existing books, institution documents, and internet services served as secondary data.

3.5 Data analysis

The quantitative data were descriptively analyzed using the Statistical Package for Social Science (SPSS), while for the qualitative data analysis grounded theory is the most preferred way of doing qualitative research (Creswell, 2013). It provides the theoretical roots for the qualitative approaches of studying knowledge, attitudes practices, and perceptions about social phenomena such as social vulnerability. As such it was used to organize the concepts and themes that emerged from the qualitative data. In line with this, the notes from the focus group discussion were written up and synthesized for two different discussions (i.e. males and females). Responses were then analyzed to identify ideas and then similar ideas were grouped into coherent concepts and themes to interpret the text. Notes from key informant interviews were also analyzed.

4. CHAPTER 4: RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter presents a summary of the collected data qualitatively and quantitatively analyzed data. The collected and analyzed data applied intended to address the set research questions that are presented in chapter 1. The chapter further provides an analysis and findings and a discussion of the findings.

4.2. Results of the study

4.2.1. Demographic information

In this research, the data were analyzed based on the different demographic characteristics and the results are presented below.

4.2.1.1 Gender

Table 1. Showing the number of male and female participants involved in the study.

Gender	Frequency	Percent
Female	28	50.9
Male	27	49.1
Total	55	100

The significance of including gender as a variable is that it is easier to analyze the percentage of the gender which is mostly affected by floods. In this case, the total number of respondents who were involved in this study was 55. Out of 55 respondents, 28 respondents were female representing 50.9% while 27 respondents were male representing 49.1%

4.2.1.2 The level of education

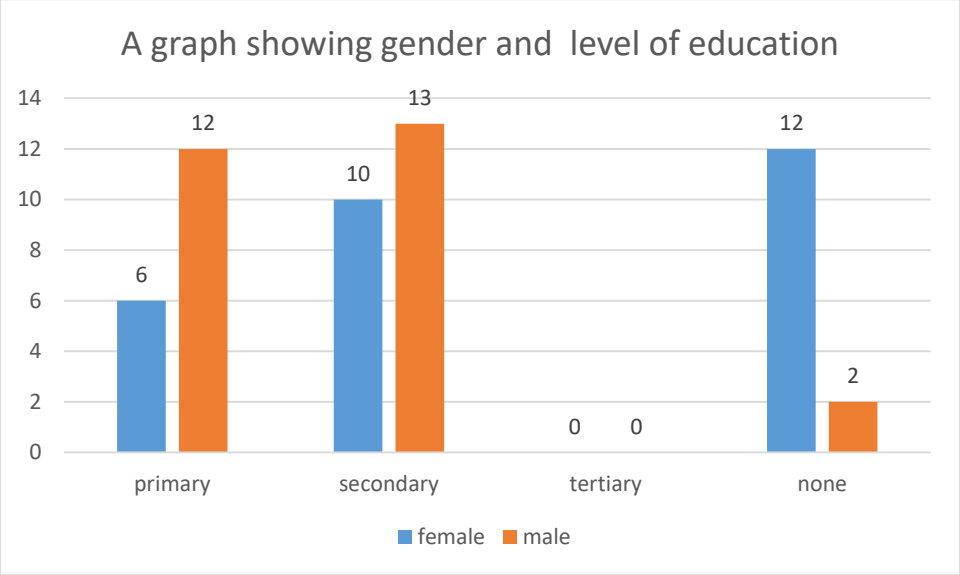


Figure 2. Showing the results differences between males and females on the level of education attended

Figure 2 is a graph showing the results on the differences between males and females on the level of education attended. Total respondents were 55, of which out of 18 respondents who attended primary level 6 were female representing 10.9% while 12 were male representing 21.8%, and out of 23 respondents who attended secondary level 10 were female representing 18.2% and 13 were male representing 23.6%. On tertiary level 0 was recorded meaning that no male or female was recorded and on those who never attended any of the levels, out of 14 respondents 12 were female representing 21.8% while 2 were male representing 3.6%

The results from figure 2 show small percentages of women who attended different levels of education and again more women percentage on those who never attended any of the levels. The research found the following reasons causing such an implication; beginning with poverty, educating children is a heavy burden for many families. When faced with the choice, parents will often choose to invest in education for their sons instead of daughter. Secondly, mostly girl children are assigned to do household chores such as collecting firewood and fetching water during school hours. In some cases, before going to school they spent considerable time doing different chores and also after school.

Lastly, child marriage is a prominent cultural practice in Chikuse community such that most girls get married at the age of 18 and even below.

4.2.1.3 Work performed at the household level

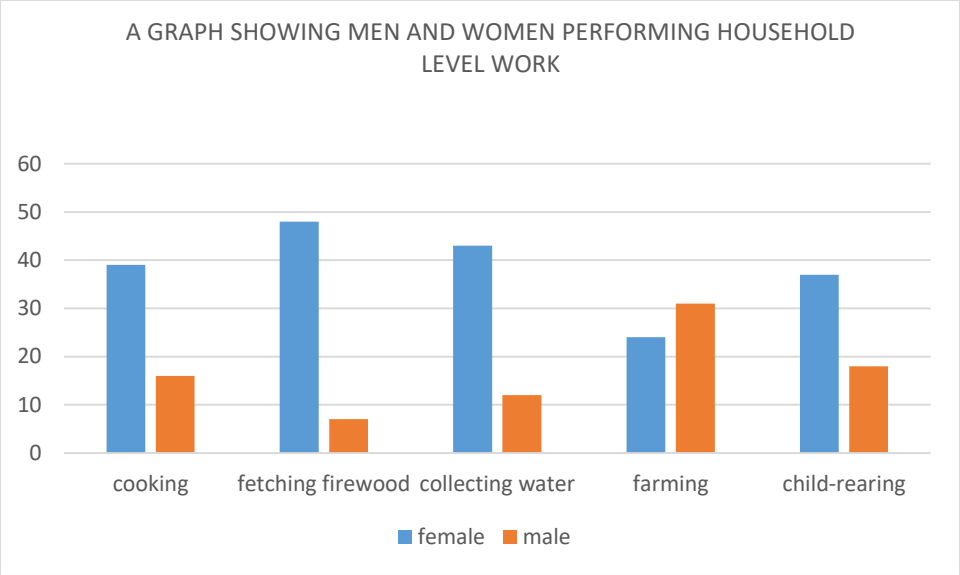


Figure 3 is a graph showing males and females involved in performing different work at the household level.

Study results show more women being involved in cooking, fetching firewood, collecting water, child-rearing, and more men in farming. The results are due to the following; cooking, fetching firewood, collecting water, and child-rearing are termed as social roles assigned to women. But both women and men almost equally perform farming activities as they respond that farming is the only way they can earn a living.

4.2.2. Access to general disaster information

Participants were asked whether they receive general disaster information from different communication channels namely; phone, radio, and television.

Table 2. Showing results on access to disaster information through the use of phone

Gender	Have access	Not having access	Total
Female	8	20	28
Male	25	2	27

Total	33	22	55

Table 2 shows results from 55 respondents on access to disaster information through the use of the phone. Out of 33 respondents who answered that they have access to disaster information through the use of phone 8 respondents were females representing 14.5% while 25 were males representing 45.5% and out of 22 respondents who answered no that they do not have access to disaster information through the use of phone 20 were females representing 36.4% while 2 were males representing 3.6%.

The study found the above results due to the following implications; in Chikuse community women are restricted to the use of phones by their husbands for the reason that they may be communicating with other men. Poverty also adds to the barrier on the use of phones, this is because the little sum of money they get they use it for buying food and other basic resources instead of buying a phone and lastly respondents who have phones complained that they find it difficult to charge their phones due to inadequate electric power supply in the area.

Table 3. Showing results on access to disaster information through the use of radio

Gender	Having access	Don't have access	Total
Female	16	12	28
Male	25	2	27
Total	41	14	55

Table 3 shows the results from 55 respondents on access to disaster information through the use of radio. Out of 46 respondents who answered yes that they have access to the use of radio, 16 were females representing 29.1% while 25 were males representing 45.5%, and out of 14 respondents who answered no that they do not have access to the use of radio 12 were females representing 21.8% while 2 were males representing 3.6%.

The study found the results above due to the following implications; in most cases, men tend to take the control of the radio for being the head of the family and again women

are always busy working for household chores such as cooking, moving long distances to collect water and fetching firewood while men tend to use this time listening to the radio. This renders women not to spare time to listen to the radio.

Table 4. Showing results on access to disaster information through the use of television

Gender	Having access	Don't have access	Total
Female	0	28	28
Male	0	27	27
Total	0	55	55

Table 4 shows results from 55 respondents on access to disaster information through the use of television, all respondents answered that they don't have the television bringing 100% on the option that they don't have access to disaster information through the use of television.

The study found the implication above due to poverty as the major reason giving them a barrier on the use of television. They said they opt to buy food and other basic resources for survival instead of buying television and again they cannot afford to access electricity as it is expensive.

Table 5. Showing access to leadership opportunities on disaster risk management activities

Gender	Having leadership opportunity	Don't have a leadership opportunity	Total
Female	3	25	28
Male	13	14	27
Total	16	39	55

Table 5 shows results from 55 respondents on access to leadership opportunities on disasters risk management activities. Out of 16 respondents who answered that they have equal access to leadership opportunities on disaster risk management activities, 3 respondents are females representing 5.5% while 13 are males representing 23.6% and out of 39 respondents who answered that they do not have equal access to leadership opportunities on disaster risk management activities 25 are females representing 45.5% while 14 are males representing 25.5%.

The study found the implications above due to the following reasons; cultural norms in Chikuse community limit women's role to their domestic responsibilities for example child-rearing and doing household chores, most women in this area of study find it difficult in balancing work life and family commitments, and women respond that they are having a feeling of lacking the confidence to speak up in a male-dominated environment as they are not used in public speaking as compared to men.

Table 6. Showing those who took part in decisions of disaster risk management in the community

Gender	Those taking part in decision making	Those not taking part in decision making	Total
Female	8	20	28
Male	14	13	27
Total	22	33	55

Table 6 shows results from 55 respondents on those who took part in decisions of disaster risk management in the community. Out of 22 respondents who answered that they have equal access to decisions of disaster risk management, 8 respondents were females representing 14.5% while 14 were males representing 25.5%, and out of 33 respondents who answered that they do not have equal access to decisions of disaster

risk management 20 were females representing 36.4% while 13 were males representing 23.6%.

The study results from table 6 are due to the following reasons; women lacking education such that in this community women have higher levels of illiteracy and again women spend fewer years of school than men. They also lack experience of decision making in the public arena because the women in contrast to men are socialized to play passive roles and given little opportunity to make decisions making women lack self-confidence and skills needed in the public context

4.2.3. Access to financial resources

Table 7. Showing access to financial resources between men and women

Gender	Having access	Don't have access	Total
Female	7	21	28
Male	17	10	27
	24	31	55

Table 7 shows the results from 55 respondents on access to financial resources on issues concerning disasters. Out of 24 respondents who answered that they have equal access to financial resources 7 respondents were females representing 12.7% while 17 were males representing 30.9% and out of 31 respondents who answered that they do not have equal access to financial resources 21 were females representing 38.2% while 10 were males representing 18.2%.

The study found the above implications due to the following reasons; men tend to take control over income they get from any source (i.e. after selling farm products the money tends to be kept by the husband). Their traditional norms took men as the primary income earners hence preventing women from accessing income-generating opportunities. Even after receiving grants from the government or well-wishers, women tend to hand in the money to their husbands to control it.

4.2.4. Root causes of gendered-based vulnerability

Respondents indicated that the root causes of gendered-based vulnerabilities in the Chikuse community are due to the following factors. Beginning with, unequal access to information about disasters which is often distributed over the radio or mobile phones is limited for women as compared to men because men tend to control these items. From the study results, 14.5% are women having access to disaster information through the use of phones while 45.5% are men have access to disaster information through the use of the phone. Also, the study found that men tend to be household decision-makers, this puts women at risk. In some cases, women remain at home when floodwater reaches dangerous levels because their husband has decided not to evacuate, or women decide to wait for their husbands to return before leaving. Again there is unequal access to decision participation at the community level from the study results 14.8% are for women and 25.5% are for men. Furthermore, there is unequal access to leadership opportunities on disaster risk management activities. From the study results, 5.5% are women have access to leadership opportunities in disaster risk management and 23.6% are men having access to leadership opportunities in disaster risk management.

4.2.5. Gender mainstreaming in disaster risk reduction

In the area of traditional authority, Makhwira results from the survey show that gender is not mainstreamed in disaster risk reduction. This has been proven by; a few numbers of women's participation in the disaster decision making processes, a small number of women being given chances of leadership opportunities in disaster risk management this is so because women are said to have no confidence such that they cannot speak in the environment dominated by men in the public and again most women are illiterate and many others with low education levels.

4.2.6. Relationship between gender, and vulnerabilities to flooding risk.

In Chikuse community gender differences appear as there is the unequal distribution of decision power in disaster issues, unequal household workload, and unequal leadership opportunities in disaster risk management. The explained above factors are derived from cultural issues that lead to gendered-based inequality thereby developing a complex

situation for women such that at the time of a disaster there are more vulnerable to disasters than men.

4.2.7. Coping strategies to flood risk

The study also focuses on how the community responds to protect and cope with the flood risk. Results show that People apply more than three coping mechanisms to live in the area and these are; they said that they construct homes at an anthill, building homes at a safer and higher elevation, and construct local havens called tchete. Three factors were identified that influence the coping mechanisms employed by the community at different flood stages –before, during, and after. Income, access to assistance, and geographical location show significant relationships with the community's coping mechanisms. However, other respondents when asked how they cope up during or after the flood said that they do not have any coping mechanism because during this time almost all the properties that they depend on are destroyed by flood.

4.2.8. The importance of gender analysis in disasters

Anderson (1994) linked the disaster development continuum to gender analysis as an essential tool that can contribute significantly to addressing root causes and can support effective and equitable long-term development. The article said that women are more vulnerable than men because of their traditional roles, and understanding the causes of their vulnerability can help to identify ways in which men are also vulnerable. Eklund and Tellier challenged the lack of gender-disaggregated data in the crisis response phase. The article's findings revealed that humanitarian response evaluations rarely collected or referred to gender-disaggregated data, and there is a gap between policy and practice in this field according to the article, important information to reduce the vulnerability of both males and females can be obtained from existing data and population-level studies related to the disaster situations.

4.3. Discussion of the results

Within the reports and documents used in this study, the findings show that the notion of 'women being most vulnerable' or 'disproportionately affected' to floods and any other disaster. MacGregor (2010) and Arora-Jonsson (2011) have already highlighted and

critiqued existing generalizations of women in the Global South as vulnerable and have called for more contextualized research.

The study found that the social role of women made them more vulnerable to the impacts of flood hazards compared to men. Women perform several household chores that contribute to their vulnerability. Most women's social roles largely depend on natural resources such as water and firewood which highlight their vulnerability. This is in agreement with Owusu and Mensah (2017) observed that the social role of women made them more vulnerable to impacts of climate hazards compared to men. Women performed the bulk of the routine domestic duties which contributed to increase their time poverty and negatively affected their adaptive capacity

According to the study findings women are rendered vulnerable to floods as most of them do not take part in disaster decision such that they fail to address issues that renders them vulnerable to flood. This is so because women always spare their time doing household chores such that they found it difficult to take their time and participate in disaster meetings. And again women are denied access to leadership opportunities in disaster activities such that this does not motivate women to attended disaster conferences. This is in agreement with Yumani (2014) who observed that women's lack of leadership opportunity in disaster activities increases their vulnerability to the adverse impacts of natural disasters.

The study found that men tend to take control over the income they get from several sources (i.e. after selling farm products). Their traditional norms took men as the primary income earners hence preventing women from accessing income-generating opportunities. Even after receiving grants from the government or well-wishers, women tend to hand in the money to their husbands to control it. This in contrast to orlien and mathide (2019) observes that men also face gendered vulnerabilities due to the impacts of floods. Men's vulnerabilities revealed in the study are first of all related to socially and culturally embedded expectations of their gendered role and responsibility of men as the "breadwinner" of the household. More specifically findings from the study show how the financial burden of flood events even has led to male farmers committing suicide.

According to the study findings women in Chikuse community are rendered vulnerable as they lack disaster information. This is because most women do not have access to the use of radio and phone as compared to men, Again most risk communicators assume that women in the family receive information from men as household heads, this is also due to heavy work and family responsibilities women are generally unable to inform themselves or participate in community-based communication campaigns of proven utility, most women in Chikuse never know about flood severity since they have never attended any training about floods and they also expressed their concern for their limited knowledge about the hazards affecting their area. This is in agreement with the Malawi government flood report (2015), which observed that access to warning information about disasters, which is often distributed over the radio or mobile phones, is limited for women, as men tend to control these items.

According to the findings, despite equal rights by national laws and policies, there are cultural, political, and social barriers for gender equality when looking beyond the written laws and policies an example such findings reveal that men and women have equal rights when it comes to education, but women tend to drop out of school due to expectation about their responsibility for the children and the household such that most women are illiterate. This is in agreement with the Malawi government flood report (2015) observed that in 2009 Malawi had a net enrolment rate of 98% for girls and 94% for boys at primary, yet only 25% for girls and 27% for boys at the secondary level. There were some reports that children were dropping out of school and engaging in child labor because of the floods. Girls are also more likely than boys to be withdrawn from school to support their families with domestic and agricultural work, including taking on caring roles for younger children or sick relatives.

The study findings show that gender is not mainstreamed this is shown by a few numbers of women's participation in the disaster decision making processes, a small number of women being given chances of leadership opportunities in disaster risk management this is so because women are said to have no confidence such that they cannot speak in the

environment dominated by men in the public and again most women are illiterate and many others with low education levels.

The study findings show the relationship between gender and vulnerability this is due to the following reasons unequal distribution of decision power in disaster issues, unequal household workload, and unequal leadership opportunities in disaster risk management. The explained above factors are derived from cultural issues that lead to gendered-based inequality thereby developing a complex situation for women such that at the time of a disaster there are more vulnerable to disasters than men.

The findings also show that the main coping strategies employed by households were constructing homes at an anthill, building homes at a safer and higher elevation, and construct local havens called tchete.

The overall aim of the study has to a large extent been realized such that government, NGOs, and Disaster Risk Management (DRM) Stakeholders should implement the recommendations proposed in this study.

5. CHAPTER: 5 CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The study investigated gender-based vulnerability to flood risk in Chikuse community. According to the key findings the study suggests the international and national discourses to be mostly concerned with the policy-related aspects, such as a generalized notion of women as being the most vulnerable, the promotion of increased participation of women in decision-making, and Gender Mainstreaming.

The study has shown gendered impacts or vulnerabilities towards floods through knowledge of gendered norms in terms of roles and responsibilities in Chikuse community. Women's vulnerabilities are related to their roles and responsibilities as being in charge of the household and children. The study found that women face difficulties and obstacles during flood events that make their gendered responsibilities more challenging. Examples are household responsibilities like cooking, collecting water, and fetching firewood. In addition, the study shows that lack of access to resources puts women in a more vulnerable situation. The study, therefore, sees a need for more qualitative contextualized empirical data that could examine whether, and how, the general notion of women as the most vulnerable is reflected in various local contexts. The study, therefore, argues that one should look beyond a binary approach to gender and look into gendered vulnerabilities related to floods and calls for more studies that explore the gendered vulnerabilities of men.

5.2. Recommendations

From the assessment which was done the following recommendations should be taken into consideration by both government and all stakeholders.

1. Gender should be mainstreamed in disaster risk reduction so as both men and women should equally be involved in disaster management
2. All children who have school-going age should also access education in this area so that as they become educated they may become the opposing forces of bad

cultural beliefs which make people vulnerable, which can yield positive results and eventually reduce people's vulnerability which can come due to behavior change.

3. It should be remembered that at all the time the most victims in flood-prone areas are children, youth, as well as elderly people, and the most cause is cultural beliefs. Therefore, authorities who are involved in planning strategies should first of all civic educate the people in such areas.

6. REFERENCES

CARE Rapid Gender Analysis Malawi-Nsanje District Cyclone Idai Flooding. (2019). April.

Ciampi, M. C., Gell, F., Lasap, L., & Turvill, E. (2011). Gender and Disaster Risk Reduction: A training pack.

Enarson, E. (2000). Gender and Natural Disaster. In *InFocus Programme on Crisis Response and Reconstruction.*

Ferris, E., Petz, D., & Stark, C. (2013). Disaster Risk Management: A Gender-Sensitive approach is a smart Approach. The Year of Recurring Disaster: A Review of Natural Disaster In 2012.

Gender Equality and Women's Empowerment in Disaster Recovery. (2020). Gender Equality and Women's Empowerment in Disaster Recovery.

Guide, W. (n.d). Gender and disaster risk reduction in Europe and Central Asia.

IUCN. (2007). Disaster and gender statistics.

MDRMW014efr.pdf. (n.d).

Mtembenuzeni, j., & kushe, j. (2018). Theory and Practice of Vulnerability to Disasters in Flood Prone Areas in Chikwawa, Malawi.

Neumayer. E., & Plumper, T. (2007). The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life Expectancy, 1981-2002.

UNDP. (2013). Gender and Disaster Risk Reduction. *United Nations Development Programme.*

UNDP, & UNDP. (2016). Gender, adaptation, and disaster risk reduction. *Gender and climate change.*

Always, j., Belgrave, L.L., and smith, J.K. (1998), Back to Normal: Gender and Disaster, *Symbolic Interaction.*

Ariyabandu, M.M. (2009), Sex, gender and gender relations in disaster, in Enarson, E. and Dhar Chakrabarti, P.G. (Eds.), Women, gender and disaster; global issues and initiatives, Los Angeles.

Bradshaw, S. (2013), Gender, Development and Disasters, Cheltenham: Edward Elgar.

Carpenter, M. (2013), 'Australia Can Lead the Way for Intersex People', The Guardian, 18 June.

EM-DAT - The International Disaster Database (2014), Natural Disasters Trends / Advanced Search, Université Catholique de Louvain.

Enarson, E. (2012), Women confronting natural disaster: From vulnerability to resilience, Boulder and London: Lynne Rienner Publishers.

Fothergill, A. (1998), 'The Neglect of Gender in Disaster Work: An Overview of the Literature, in Enarson, E. and Morrow, B.H. (Eds.), The Gendered Terrain of Disaster: Through Women's Eyes, Westport.

Ikeda, K. (1995), Gender Differences in Human Loss and Vulnerabilities in Natural Disasters: a case study from Bangladesh, Indian journal of gender studies

Klinenberg, E. (2015), Heat Wave: A Social Autopsy of Disaster in Chicago, 2nd ed., Chicago: The University of Chicago Press.

McDowell, L. (1999), Gender, identity, and place: Understanding feminist geographies, Minneapolis: University of Minnesota Press.

Neumayer, E. and Plümper, T. (2007), The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002', Annals of the Association of American Geographers.

Skovdal, M and Cornish, F. (2015). Qualitative Research for Development, Rugby, UK: Practical Action Publishing.

Yilmaz, K. (2013). Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences. European Journal of Education.

Yumarni, T., Amaratunga, D. and Haigh, R. (2014), 'Assessing gender vulnerability within post-earthquake reconstruction: a case study from Indonesia', Procedia Economics and Finance.