

**ASSESSING THE EFFECTIVENESS OF HOUSING  
RECONSTRUCTION AND REHABILITATION MEASURES FOR  
DISASTER AFFECTED COMMUNITIES IN KZN  
(UTHUKELA DISTRICT MUNICIPALITY)**

**BY**

**KWETHEMBA INNOCENT PHUNGULA**

**NOVEMBER 2021**



**ASSESSING THE EFFECTIVENESS OF HOUSING  
RECONSTRUCTION AND REHABILITATION MEASURES FOR  
DISASTER AFFECTED COMMUNITIES IN KZN  
(UTHUKELA DISTRICT MUNICIPALITY)**

**A dissertation submitted in fulfilment of the requirement of the  
Degree of Master of Management Sciences: Public Administration  
specialising in Disaster Management**

**In the  
Faculty of Management Sciences**

**at the  
DURBAN UNIVERSITY OF TECHNOLOGY**

**BY**

**KWETHEMBA INNOCENT PHUNGULA**

**NOVEMBER 2021**

Supervisor: \_

\_

Date: 18/11/2021 \_\_\_\_\_

## ABSTRACT

South Africa is experiencing the realities of climate change with the increasing intensity of disasters causing devastating impact to infrastructure, houses, roads and schools. Post-disaster housing rehabilitation and reconstruction is one of the most challenging tasks confronting decision makers and disaster management practitioners in disaster affected areas and remains an under studied area. This triggered the interest of the researcher to understand the impact of the phenomenon and how communities recover from disasters. The purpose of the study was to assess the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in KZN. The location of the study was Tholeni area in Alfred Duma Local Municipality, within uThukela District Municipality, because this area is highly vulnerable to natural hazards.

This study used the philosophical worldview of pragmatism; a mixed research approach to solicit views, experiences and perspectives of affected communities, Disaster Management Practitioners and officials from Department of Human Settlements was used. Data was obtained through questionnaires and interviews. In order to achieve this, purposive sampling method was used as it helped to purposely select disaster management practitioners and officials from the Department of Human Settlements who could provide sufficient data for the purposes of completing the study. Descriptive statistical and content analysis was conducted from the analysis of emergent data. The qualitative results were triangulated to further test validity of empirical results. Data collected was computed by means of excel spread sheets and results were presented in the form of bar graphs, tables with descriptive analysis.

The findings of the study showed that the affected communities were not satisfied with housing assistance post-disaster incidents. The findings sited that assistance takes longer and in some instance does not reach all affected communities. The other finding from affected communities was that government does not provide feedback to give an update of post-disaster interventions. Findings from disaster management practitioners highlighted capacity constraints, poor planning, inadequate budget, and lack of close monitoring, which have a direct effect on delivery of houses post-disaster incidents. Findings from officials from the Department of Human Settlements sited long processes of verification of damages by National Disaster Management Centre and delays with approvals of disaster funding allocation by National Treasury which affects effective delivery of post-disaster housing. The other finding was the issue of inadequate internal budget and low level of preparedness by the Department of Human Settlements. The shortcomings were evident, including the existence of plans and policies exclusive of post-disaster housing information and linked to poor monitoring and coordination of projects by the Department of Human Settlements.

The study proposed a guiding framework for post-disaster housing rehabilitation and reconstruction and also offered a number of recommendations that can assist the Department of Human Settlements and Municipalities to enhance disaster response and recovery. This includes recommendations to develop or review post-disaster housing policy in order to address some of the challenges which emerged from the study. The Department of Human Settlements, working with municipalities, should prioritise the land tenure security for affected communities in order to fast track post-disaster housing interventions.

**Key Words: Disaster Management, Post-Disaster Housing, Human Settlements & Post-Disaster Housing Rehabilitation and reconstruction**

## DECLARATION OF ORIGINALITY

- (i) I, **KWETHEMBA INNOCENT PHUNGULA**, hereby present for consideration by Durban University of Technology within the Faculty of Management Sciences my dissertation titled as “Assessing the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in KZN (UThukela District Municipality)” in fulfilment of the requirements for the Master’s Degree of Management Science: Public Administration.
- (ii) I undersigned declare that this dissertation is the product of my own original work and that no other person has published a similar study from which I might have copied.
- (iii) All sources used or quoted in the study have been acknowledged by means of complete references in accordance with University’s requirements.
- (iv) This work will not be published without my consent and that of the Durban University of Technology.

Name: Mr Kwethemba Innocent Phungula

Signature

Date : 18 November 2021

## DEDICATION

- (i) My late parents **Makhotha** and **Maputshu**; late grand-mother **Pauline**, late grand-mother **Mathobela**, you have all been my source of strength to excel in life.
  
- (ii) Lastly, I would like to express my gratitude to my beautiful wife, **Dunyisiwe** and my children, **Mpumelelo**, **Luthando** and **Abonge** for your understanding and support during those late nights and early mornings. I would like to you to know that you will always be my source of inspiration. I would have not completed this work without your undying support.

**Kwethemba Innocent Phungula**  
**November 2021, DUT**

## ACKNOWLEDGEMENTS

I would like to thank my Creator for blessing me with life and making every moment possible for me to write and finish this work; I would like acknowledge His utmost help in everything. I appreciate and thank the following people who believed in me and supported me throughout this journey.

- A special thank you to my study leader **Dr Maliga Reddy** for her wisdom, dedication, passion and continuous support. Your guidance, motivation, patience and extra-ordinary support was an inspiration to me. She has availed herself when I needed her the most.
- A special gratitude to **Mr M Zungu, HOD for KZN Department of Human Settlements** for allowing research to be conducted in his Department. **Ms K Sithole, Director: Special Projects** and her team for their participation in the study.
- **Head of Municipal Disaster Management Centres and Provincial Disaster Management Practitioners** who participated in study, without whom, this important study would have not been successfully completed.
- Councillor of Ward 34, **Cllr Nkabinde** for allowing research to be conducted in his area of jurisdiction; the Community of Tholeni area for their warmth and opening their homes to us to do data collection during difficult times of COVID 19 pandemic.
- Research assistants, **Ms Mchunu, Ms Gabuza** and **Mr Gwebu** who played a critical role during data collection journey: without your hard work the study would have not been completed.
- My Colleagues, **Mr Gcwensa** and **Mrs Ntuli** for editorial work, wisdom, words of encouragement and support.
- Thanks to my language editor Dr Turnbull-Jackson for her role.

**Kwethemba Innocent Phungula**

**November 2021, DUT**

## TABLE OF CONTENTS

ABSTRACT.....	i
DECLARATION OF ORIGINALITY.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
TABLE OF CONTENTS.....	v – x
LIST OF TABLES.....	xi
LIST OF FIGURES.....	xii
ACRONYMS.....	xiii

### CHAPTER 1

#### INTRODUCTION AND BACKGROUND

<b>1. INTRODUCTION AND BACKGROUND .....</b>	<b>1</b>
<b>1.1 INTRODUCTION .....</b>	<b>1</b>
<b>1.2 BACKGROUND OF THE STUDY.....</b>	<b>1</b>
<b>1.3 THE SIGNIFICANCE OF THE STUDY .....</b>	<b>4</b>
<b>1.4 RESEARCH PROBLEM.....</b>	<b>6</b>
<b>1.5 STUDY AIMS AND OBJECTIVES .....</b>	<b>7</b>
<b>1.6 SCOPE OF THE STUDY .....</b>	<b>8</b>
<b>1.7 RESEARCH DESIGN AND PHILOSOPHICAL WORLDVIEW .....</b>	<b>9</b>
<b>1.8 RESEARCH METHODOLOGY .....</b>	<b>9</b>
<b>1.8.1 Data Collection Methods .....</b>	<b>10</b>
<b>1.9 VALIDITY AND RELIABILITY .....</b>	<b>11</b>
<b>1.10 PRETESTING OF STUDY .....</b>	<b>11</b>
<b>1.11 DELIMITATIONS OF THE STUDY.....</b>	<b>12</b>
<b>1.12 DATA INTERPRETATION AND ANALYSIS .....</b>	<b>12</b>
<b>1.13 ETHICAL CONSIDERATIONS .....</b>	<b>13</b>
<b>1.14 CHAPTER OUTLINE .....</b>	<b>14</b>
<b>1.14.1 Chapter One.....</b>	<b>14</b>
<b>1.14.2 Chapter Two .....</b>	<b>14</b>
<b>1.14.3 Chapter Three .....</b>	<b>14</b>
<b>1.14.4 Chapter Four .....</b>	<b>14</b>
<b>1.14.5 Chapter Five.....</b>	<b>15</b>
<b>1.14.6 Chapter Six.....</b>	<b>15</b>
<b>1.15 CONCLUSION .....</b>	<b>15</b>

**CHAPTER 2**  
**LITERATURE REVIEW**

<b>2.1 INTRODUCTION .....</b>	<b>16</b>
<b>2.2 THEORETICAL FRAMEWORK .....</b>	<b>16</b>
<b>2.3 RELEVANCE OF GENERAL SYSTEMS THEORY .....</b>	<b>16</b>
<b>2.4 BACKGROUND TO DISASTER MANAGEMENT .....</b>	<b>21</b>
<b>2.4.1 Disaster Management Cycle .....</b>	<b>23</b>
<b>2.5 THE CHALLENGES OF POST-DISASTER HOUSING RECONSTRUCTION .....</b>	<b>24</b>
<b>2.6 ROLE OF COMMUNITIES IN POST-DISASTER RECONSTRUCTION .....</b>	<b>25</b>
<b>2.7 POST-DISASTER HOUSING RECOVERY .....</b>	<b>25</b>
<b>2.7.1 Post-Disaster Housing Patterns.....</b>	<b>26</b>
<b>2.8 FUNDING MECHANISMS FOR DISASTER RESPONSE AND RECOVERY.....</b>	<b>28</b>
<b>2.9 THE UNIVERSAL DECLARATION OF HUMAN RIGHTS .....</b>	<b>28</b>
<b>2.10 SPHERE MINIMUM INTERNATIONAL STANDARDS FOR HUMANITARIAN RESPONSE .....</b>	<b>29</b>
<b>2.11 SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION (2015 - 2030).....</b>	<b>29</b>
<b>2.12 GLOBAL IMPACTS OF DISASTERS.....</b>	<b>30</b>
<b>2.12.1 Economic and Social impacts of disasters.....</b>	<b>31</b>
<b>2.13 IMPACT OF DISASTERS IN SOUTH AFRICA.....</b>	<b>31</b>
<b>2.13.1 Disasters in KwaZulu-Natal Province .....</b>	<b>33</b>
<b>2.14 FRAMEWORK FOR POST-DISASTER HOUSING RECONSTRUCTION.....</b>	<b>33</b>
<b>2.14.1 The Case Study Literature: Good practices on housing reconstruction programme .....</b>	<b>33</b>
<b>2.14.2 Proposed strategic frameworks for post-disaster housing reconstruction .....</b>	<b>37</b>
<b>2.14.3 Paradigm shift of disaster risk reduction in post-disaster recovery.....</b>	<b>39</b>
<b>2.14.4 Gaps in post-disaster housing reconstruction .....</b>	<b>40</b>
<b>2.14.5 Summative analysis of post-disaster housing reconstruction .....</b>	<b>41</b>
<b>2.15 KEY DISASTER MANAGEMENT LEGISLATIVE AND POLICY FRAMEWORK IN SOUTH AFRICA.....</b>	<b>41</b>
<b>2.15.1 Constitution of South Africa.....</b>	<b>42</b>
<b>2.15.2 Disaster Management Act 57 of 2002.....</b>	<b>42</b>
<b>2.15.3 National Policy Framework for Disaster Risk Management .....</b>	<b>44</b>
<b>2.15.4 Legislative role of the Department of Human Settlements.....</b>	<b>45</b>
<b>2.16 SUMMARY OF LEGISLATION AND POLICIES .....</b>	<b>47</b>
<b>2.17 CONCLUSION .....</b>	<b>47</b>



## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

<b>3.1 INTRODUCTION .....</b>	<b>48</b>
<b>3.2 RESEARCH PHILOSOPHICAL WORLDVIEWS.....</b>	<b>48</b>
<b>3.2.1 Pragmatism Philosophical Worldview .....</b>	<b>49</b>
<b>3.3 RESEARCH DESIGN .....</b>	<b>50</b>
<b>3.4 RESEARCH METHODOLOGY .....</b>	<b>51</b>
<b>3.4.1 Selection of the Study .....</b>	<b>51</b>
<b>3.4.2 Participants in the Study .....</b>	<b>51</b>
<b>3.4.3 Data Collection Techniques .....</b>	<b>52</b>
<b>3.4.4 Open-ended Questions.....</b>	<b>56</b>
<b>3.4.5 Closed-ended Questions.....</b>	<b>57</b>
<b>3.5 TARGET POPULATION .....</b>	<b>57</b>
<b>3.6 SAMPLING POPULATION .....</b>	<b>57</b>
<b>3.7 DATA RECORDING AND ANALYSIS .....</b>	<b>58</b>
<b>3.7.1 Thematic coding.....</b>	<b>59</b>
<b>3.8 RESPONSE VALIDATION.....</b>	<b>60</b>
<b>3.9 LIMITATIONS OF THE STUDY.....</b>	<b>61</b>
<b>3.10 PILOTING OF THE STUDY .....</b>	<b>61</b>
<b>3.11 ETHICAL ISSUES.....</b>	<b>61</b>
<b>3.11.1 Voluntary Participation .....</b>	<b>62</b>
<b>3.11.2 Informed Consent .....</b>	<b>62</b>
<b>3.11.3 Anonymity and confidentiality.....</b>	<b>62</b>
<b>3.12 CONCLUSION .....</b>	<b>63</b>

## CHAPTER 4

### DATA ANALYSIS AND INTERPRETATION OF RESULTS

4.1 INTRODUCTION .....	64
4.1.1 Literature and Philosophical Worldview: Linkage to the Study .....	64
4.2 ANALYSIS OF RESEARCH RESULTS: AFFECTED COMMUNITIES.....	66
4.2.1 Section A: Biographical Data .....	66
4.2.2 Section B: Disaster Management policies implemented during post-disaster housing rehabilitation and reconstruction .....	70
4.2.3 Section C: The impact of disaster funding on the living conditions of the affected communities during post-disaster phase .....	72
4.2.4 Section D: How government provide response and recovery measures for disaster affected communities? .....	78
4.2.5 Section E: Challenges faced in post-disaster housing rehabilitation and reconstruction .....	80
4.2.6 The summary analysis of empirical results from affected communities .....	84
4.3 ANALYSIS OF RESEARCH RESULTS FROM DISASTER MANAGEMENT OFFICIALS.....	85
4.3.1 Section A: Biographical Data .....	85
4.3.2 Section B: Disaster management policies and legal frameworks implemented during post-disaster housing rehabilitation and reconstruction .....	89
4.3.3 Section C: The impact of disaster funding on the living conditions of the affected communities during post-disaster phase.....	94
4.3.4 Section D: How government provide response and recovery measures for disaster affected communities? .....	98
4.3.5 Section E: Challenges faced in Post-Disaster Housing Rehabilitation and reconstruction ....	103
4.3.6 Section F: Guiding framework for post-disaster housing reconstruction: Disaster Management Practitioners .....	109
4.3.7 Summary analysis of research results: Disaster Management officials.....	112
4.4 ANALYSIS OF RESEARCH RESULTS: OFFICIALS FROM KZN DEPARTMENT OF HUMAN SETTLEMENTS.....	113
4.4.1 Biographical Data .....	113
4.4.2 Disaster management policies & legal frameworks implemented during post-disaster housing rehabilitation and reconstruction .....	116
4.4.3 The impact of disaster funding on the living conditions of the affected communities during post-disaster phase .....	121
4.4.4 How government provide response and recovery measures for disaster affected communities?.. .....	124
4.4.5 Challenges faced in post-disaster housing rehabilitation and reconstruction .....	133
4.4.6 Section F: Guiding framework for post-disaster housing reconstruction: Department of Human Settlements.....	139
4.4.7 Summary analysis of research results: officials from the Department of Human Settlements.....	140

## **CHAPTER 5**

### **PROPOSED GUIDING FRAMEWORK FOR POST-DISASTER HOUSING REHABILITATION AND RECONSTRUCTION**

<b>5.1 INTRODUCTION .....</b>	<b>142</b>
<b>5.2 LEGISLATIVE IMPLICATIONS FOR POST-DISASTER HOUSING REHABILITATION AND RECONSTRUCTION: SOUTH AFRICAN .....</b>	<b>142</b>
<b>5.3 CONCEPTUALISATION OF THE PROPOSED GUIDING FRAMEWORK ON POST-DISASTER HOUSING RECONSTRUCTION .....</b>	<b>144</b>
<b>5.3.1 Strategic Planning Stage: Pre-Disaster .....</b>	<b>148</b>
<b>5.3.2 Reconstruction Planning Stage: During Disaster.....</b>	<b>148</b>
<b>5.3.3 Reconstruction Implementation and Monitoring Stage: Post Disaster .....</b>	<b>149</b>
<b>5.4 OPERATIONAL GUIDE TO THE APPLICATION OF THE PROPOSED GUIDING FRAMEWORK FOR POST-DISASTER HOUSING RECONSTRUCTION .....</b>	<b>150</b>
<b>5.4.1 Process flow for post-disaster housing reconstruction: roles and responsibilities of stakeholders .....</b>	<b>152</b>

## **CHAPTER 6**

### **SUMMARY AND CONCLUSION**

<b>6.1 INTRODUCTION .....</b>	<b>155</b>
<b>6.2 FINDINGS .....</b>	<b>155</b>
<b>6.2.1 The objective 1 of the study was to analyse disaster management policies and legal frameworks implemented during post-disaster housing reconstruction.....</b>	<b>155</b>
<b>6.2.2 The objective 2 of the study was assess the impact of disaster funding on the living conditions of the affected communities during post disaster phase.....</b>	<b>156</b>
<b>6.2.3 The objective 3 of the study was to examine the effectiveness of government response and recovery measures for disaster affected communities .....</b>	<b>157</b>
<b>6.2.4 The objective 4 of the study was to identify challenges in post-disaster housing rehabilitation and reconstruction.....</b>	<b>158</b>
<b>6.2.5 The objective 5 of the study was to propose a guiding framework for post-disaster housing rehabilitation and reconstruction .....</b>	<b>159</b>
<b>6.3 RECOMMENDATIONS .....</b>	<b>159</b>
<b>6.3.1 Disaster management policies &amp; legal frameworks implemented during post-disaster housing rehabilitation and reconstruction .....</b>	<b>159</b>
<b>6.3.2 The impact of disaster funding on the living conditions of the affected communities during post-disaster phase .....</b>	<b>160</b>
<b>6.3.3 How government provided response and recovery measures for disaster affected communities of Tholeni.....</b>	<b>160</b>
<b>6.3.4 Challenges in post disaster housing rehabilitation and reconstruction.....</b>	<b>160</b>
<b>6.3.5 Proposed Guiding framework for post disaster housing reconstruction .....</b>	<b>161</b>
<b>6.4 RECOMMENDED FOR FUTURE RESEARCH.....</b>	<b>162</b>
<b>6.5 CONCLUSION.....</b>	<b>163</b>

## LIST OF TABLES

<i>Table 2.1: Stages of disaster management cycle</i>	23
<i>Table 2.2: Types of post-disaster housing pattern</i>	26-27
<i>Table 3.1: Description of Philosophical Worldviews, Research Design and Methods</i>	49
<i>Table 3.2: Summary of study participants and method of data collection</i>	58
<i>Table 4.1: Age Group: Affected communities</i>	67
<i>Table 4.2: Type of Housing</i>	68
<i>Table 4.3: Number of Occupants</i>	69
<i>Table 4.4: Municipal policies responding to post-disaster housing reconstruction</i>	70
<i>Table 4.5: Nature of the home or place where you are currently staying</i>	73
<i>Table 4.6: Was your family affected by disasters in previous years?</i>	74
<i>Table 4.7 Turnaround time for DHS to provide post-disaster housing</i>	76
<i>Table 4.8: Turnaround time for immediate response to affected communities</i>	79
<i>Table 4.9: Age Group: disaster management practitioners</i>	86
<i>Table 4.10: Current Position in Disaster Management Centre</i>	87
<i>Table 4.11: Period of Service: disaster management practitioners</i>	87
<i>Table 4.12: Policy framework on the importance of PDHR</i>	93
<i>Table 4.13: Policy framework addressing current challenges of PDHR</i>	93
<i>Table 4.14: Funding with direct impact on effective delivery of PDHR</i>	97
<i>Table 4.15: Type of disaster relief provided to affected communities</i>	99
<i>Table 4.16: Turnaround time for immediate response to affected communities</i>	100
<i>Table 4.17: Is the project implementation process closely monitored</i>	104
<i>Table 4.18: Mechanism to monitor the implementation of housing recovery</i>	104
<i>Table 4.19: Communication protocol for PDHR between critical stakeholders</i>	106
<i>Table 4.20: Framework that guides post-disaster housing reconstruction</i>	110
<i>Table 4.21: Do you think it is necessary for municipalities to develop policies responding to emergency housing as part of contingency planning?</i>	112
<i>Table 4.22: Age Group: officials from Department of Human Settlements</i>	114
<i>Table 4.23: Position in the Department of Human Settlements</i>	114
<i>Table 4.24: Experience in the Department of Human Settlements</i>	115
<i>Table 4.25: Do you think it is essential for the department to develop disaster housing recovery plan for implementation of disaster housing reconstruction projects</i>	118
<i>Table 4.26: Does your department have a disaster management plan which incorporates housing recovery strategies?</i>	119
<i>Table 4.27: In your opinion, does your department make provision in the budget for swift response to disaster housing needs?</i>	121
<i>Table 4.28: Did your Department receive PDHR funding for 2011/12 flood disasters from National Treasury</i>	123
<i>Table 4.29: Do you think funding for post-disaster housing rehabilitation and reconstruction was effectively utilised to response to housing needs of affected communities?</i>	124
<i>Table 4.30: Temporal Shelter interventions and turnaround time</i>	126
<i>Table 4.31: Provision of permanent housing interventions and turnaround time</i>	127
<i>Table 4.32: Is the Department implementing PDHR in line with policy requirements?</i>	130
<i>Table 4.33: Does your department prioritise economic development opportunities for local communities during PDHR?</i>	133
<i>Table 4.34: What is your view on communication mechanism on post-disaster recovery projects between the department, disaster management practitioners and affected communities?</i>	135
<i>Table 4.35: If no, do you think it is essential to have a standardised framework for disaster housing reconstruction?</i>	140
<i>Table 5.1: Steps of operational guide for effective implementation of the proposed guiding framework on post-disaster housing reconstruction</i>	151-152

## LIST OF FIGURES

<i>Figure 2.1: Basic Elements of systems approach</i>	18
<i>Figure 2.2: Relationship between key evaluations themes and Systems Approach Theory</i>	20
<i>Figure 2.3: The Disaster Management Cycle</i>	24
<i>Figure 4.1: Effectiveness of municipal policies responding to disaster housing recovery</i>	71
<i>Figure 4.2: Level of living conditions</i>	73
<i>Figure 4.3: PDHR interventions are effectively addressing housing needs of affected communities</i>	77
<i>Figure 4.4: Minor Defects and poor quality of houses</i>	81
<i>Figure 4.5: Level of Satisfaction</i>	82
<i>Figure 4.6: Pictures of Damaged Houses</i>	83
<i>Figure 4.7: Experience in dealing with post-disaster housing rehabilitation and reconstruction</i>	89
<i>Figure 4.8: Establishment of a dedicated disaster management unit to deal with PDHR</i>	90
<i>Figure 4.9: Responses on development of policy framework</i>	92
<i>Figure 4.10: Statutory responsibility to budget for emergency housing interventions</i>	95
<i>Figure 4.11: Adequate budget provision to finance emergency housing recovery</i>	96
<i>Figure 4.12: Type of housing assistance immediately after displacement</i>	101
<i>Figure 4.13: Implementation of post-disaster reconstruction in line with policy requirements</i>	108
<i>Figure 4.14: Standardised framework for post-disaster housing reconstruction</i>	111
<i>Figure 4.15: Establishment of a focal point to coordinate disaster housing reconstruction</i>	116
<i>Figure 4.16: Does your department have an internal policy which guides the implementation of post-disaster housing rehabilitation and reconstruction?</i>	120
<i>Figure 4.17: Do you think funding has direct impact on effective delivery of post-disaster housing reconstruction?</i>	122
<i>Figure 4.18: What type of housing interventions are provided by your department, immediately after disaster has occurred?</i>	125
<i>Figure 4.19: Is your department experiencing challenges with implementation of PDHR</i>	129
<i>Figure 4.20: How would you rate the resilience of housing infrastructure, post rehabilitation and reconstruction, should there be a recurrence of disasters?</i>	131
<i>Figure 4.21 Does your department involve the community during the implementation of PDHR</i>	132
<i>Figure 4.22: In your view, was the project implementation process closely monitored by all affected sectors?</i>	134
<i>Figure 4.23: Do these Contractors have necessary capacity to manage complex projects?</i>	137
<i>Figure 4.24: What is the level of technical competence of contractors for post-disaster housing rehabilitation and reconstruction programme?</i>	138
<i>Figure 5.1: Conceptualisation of a proposed framework for PDHR</i>	147
<i>Figure 5.2: Process flow for PDHR: roles and responsibilities of stakeholders</i>	153

## List of Acronyms

ADLM	: Alfred Duma Local Municipality
AIDMI	: All India Disaster Mitigation Institute
BBB	: Build Back Better
CRED	: Centre for Research on the Epidemiology of Disasters
DDMC	: District Disaster Management Centre
DMA	: Disaster Management Act 57 of 2002
DMAA	: Disaster Management Amendment Act 16 of 2015
ELM	: Emnambithi/Ladysmith Local Municipality
EM-DAT	: Emergency Events Database
EPWP	: Expanded Public Works Programme
FEMA	: Federal Emergency Management Agency
IDNDR	: International Decade for National Disaster Reduction
IDPs	: Integrated Development Plans
IFRC	: International Federation of Red Cross and Red Crescent Societies
IGR	: Intergovernmental Relations
IRP	: International Recovery Platform
ISDR	: International Strategy for Disaster Reduction
JOC	: Joint Operation Committee
KPAs	: Key Performance Areas
KZN CoGTA	: KwaZulu-Natal Cooperative Governance and Traditional Affairs
KZN DHS	: KwaZulu-Natal Department of Human Settlements
KZN PDMC	: KwaZulu-Natal Provincial Disaster Management Centre
KZN PDMF	: KwaZulu-Natal Provincial Disaster Management Framework
MDMC	: Municipal Disaster Management Centre
MEC	: Member of Executive Council
NDMC	: National Disaster Management Centre
NDMF	: National Disaster Management Framework
NGOs	: Non-Governmental Organizations
NHBRC	: National Home Builders Registration Council
PDHR	: Post-Disaster Housing Reconstruction
PDR	: Post-Disaster Reconstruction
PSC	: Project Steering Committee
PTO	: Permission to Occupy
SABS	: South Africa Bureau of Standards
SANS	: South Africa National Standards
SAWS	: South African Weather Services
SCM	: Supply Chain Management
SFDRR	: Sendai Framework for Disaster Risk Reduction
SOP	: Standard Operating Procedure
UDHR	: Universal Declaration of Human Rights
UNDP	: United Nations Development Programme
UNDRO	: United Nations Office of the Disaster Relief Co-ordinator
UNISDR	: United Nations International Strategy for Disaster Reduction

# **CHAPTER ONE**

## **INTRODUCTION AND BACKGROUND**

### **1.1 INTRODUCTION**

The Province of KwaZulu-Natal, like the rest of the globe, is faced with the realities of Climate Change. The Province has witnessed an increase in the occurrence and severity of adverse weather conditions such as lightning, heavy rainfall, floods and drought. These incidents have resulted in severe damages to property, natural vegetation, agricultural products and infrastructure and which has claimed lives of the innocent people. The coordinated response affords an opportunity for the affected communities to quickly go back to normality which includes returning to schools, jobs and homes, so the affected people can thrive again. This is critical for the building of resilience which is aimed at transforming and strengthening the capacity of communities, organisation and countries to organise, plan, prevent, respond and recover from emergency situations (UNDP, 2017). The components of this chapter discussed the background of the study, research problem, study objectives, the research design and philosophical view, research methodology, data collection methods, validity and reliability, significance of the study, delimitations of the study, data interpretation, ethical considerations and outline of chapters. The discussion that follows provides a clear background of the study.

### **1.2 BACKGROUND OF THE STUDY**

South Africa continues to experience above normal rainfall, these inclement weather conditions have resulted in conditions which have not been experienced in many years. It is critical to note that uncommon weather patterns are triggered by the La Nina effect. The severe weather patterns have caused flooding which resulted in damages of infrastructure, fatalities, injuries and loss of livelihoods. As reported by IFRC, 28 district municipalities in 7 provinces in South Africa were declared as a national state of a disaster, wherein more than 20 000 were affected by floods and more than 40 people lost their lives (IFRC, 2011).

In 2011, KwaZulu-Natal Province was severely affected by adverse weather conditions where more than 6271 households were severely affected, wherein 1472 structures were partially damaged and 4799 structures were totally destroyed. This resulted in 32 people losing their lives due to severe weather related incidents such as cases of drowning, caused by overflowing streams, fatal lightning strikes and structural collapse due to strong winds and heavy rainfall. The financial implications to address damages of infrastructure relating to housing, roads, bridges, schools, public facilities and agricultural sector were estimated at R715 816 400.00 (KZN-PDMC, 2011). UThukela District Municipality also experienced severe storms accompanied by hail, strong winds and heavy rainfall which caused damages to houses, roads and bridges. More than 1600 households were affected (KZN-PDMC, 2012). "A provincial state of disaster was declared in terms of section 41 of Disaster Management Act (No. 57 of 2002)". The provincial, local government, as well as Non-Governmental Organisations (NGOs) provided disaster relief measures in a form of blankets, roof sheeting, tents, food parcels, temporal shelters to the affected communities (KZN-PDMC, 2011).

The Tholeni area was extremely affected by floods and hailstorm disaster incidents where more than 432 houses were damaged and scores of families were left homeless. During the New Year's Eve and beginning of January 2011, Ladysmith town and surrounding areas were severely affected by floods and these incidents had a detrimental effect on small business, in both formal and informal sectors. The central business district of Ladysmith was the hardest hit when floodwaters surged over the banks of the Klip River, flooding more than 400 houses in Ladysmith town and surrounding areas. The taxi rank was closed and minibuses were relocated to safer areas. In Ladysmith town, major parts of Lyell Street were closed and traffic was diverted to safer roads (Murchison and Alexander roads). In some cases, businesses along Lyell Street were forced to close down for 5 days as a result of the disaster. Major economic corridor routes such as the N11 which connects the Ladysmith town and other economic hubs such as Johannesburg and Durban was closed. In the outskirt of Ladysmith town, houses, roads and bridges were damaged in Driefontein, Matiwanoskop, Tholeni and Watersmeet. The Indaka area, the greater part of Tholeni area, was also water locked and more than 300 houses were affected. This had a negative impact on economic activities of the town and loss of income and jobs (ELLM, 2011). The Mayor of Emnambithi/Ladysmith Local Municipality, Cllr F Madlala



stated that “the situation is very bad; we are trying to bring the situation to normality” (Hans and SAPA, 2011). During an interview with The Witness Newspaper, Mr Jonty Ndlazi, who is the late Head of KZN Provincial Disaster Management Centre, also reported that the Province was inundated with heavy rainfall incidents which resulted in flooding in some areas within the Province, disaster management teams conducted damage assessment and provided immediate relief measures to the victims (Hans and SAPA, 2011).

The area of Ladysmith has a long history of flooding. Ladysmith has experienced 29 major flood events in the area between 1887 and 2011 (ELLM, 2011). The most notable of these major flooding events were in 1994 and 1996. According to Backenberg and Viljoen (2003), the flood event in 1994 resulted in R50 million in damages and 400 families being evacuated. The flood event in 1996 resulted in R25 million worth of damages to the infrastructure and evacuation of several hundred families (ELLM, 2011). Continuous heavy rainfall which started during the last week of December 2010 to the beginning of January 2011 resulted in flooding and caused structural collapse in the Harding and Ladysmith areas where 1845 households were affected (IFRC, 2011). The South African Red Cross Crescent Societies supported by International Federation for Disaster Relief Emergency Fund assisted the affected families with 775 blankets, food and hygiene packs (IFRC, 2011).

Decision makers and disaster management practitioners are faced with the most challenging tasks of implementing post-disaster rehabilitation and reconstruction. The provision of disaster measures, including disaster housing rehabilitation and reconstruction, remain understudied post the aftermath. This triggered the interest of the researcher to understand the impact of the phenomenon and how communities recovered from 2011 flooding disaster and other disaster incidents which have occurred in recent years. Against the above background, the study assessed the effectiveness of housing reconstruction and rehabilitation measures for disaster affected community that occurred in the Tholeni area under Alfred Duma Local Municipality, which is the merger of Emnambithi/Ladysmith Local Municipality and Indaka Local Municipality. The municipality was established after August 2016 local government elections. Alfred Duma Local Municipality was established after the redetermination of boundaries in terms of Section 21 of the Local Government, the

Municipal Demarcation Act 1998 (Act No. 27 of 1998) which resulted in municipalities to be established (ADLM, 2018).

The focus of the study was confined to the Tholeni area under Alfred Duma Local Municipality within uThukela District Municipality specifically because this area is a mixed type of settlement characterised by formal and informal dwellings, which makes it highly vulnerable to disasters. This area was severely affected by flooding disaster incidents. Vulnerability is defined as “a set of conditions and processes resulting from physical, social, economic and environmental factors, which increase the susceptibility of a community to the impact of hazards” (UNISDR, 2009b).

An in-depth analysis focusing on disaster management policies and legal frameworks implemented during post-disaster housing rehabilitation and reconstruction; the impact of funding on the living conditions of the affected communities post disaster phase; government response and recovery measures for disaster affected communities; challenges of post-disaster housing reconstruction: leads to proposed guiding framework for post-disaster housing rehabilitation and reconstruction. This research contributes towards building the limited body of knowledge in post-disaster housing rehabilitation and reconstruction in South Africa. Furthermore, it provides an insight to disaster management scholars, disaster management practitioners and decision makers to develop and review policies for post-disaster housing rehabilitation and reconstruction.

### **1.3 THE SIGNIFICANCE OF THE STUDY**

According to Hallegatte, Vogt-Schilb, Bangalore and Rozenberg (2017) the impact of disasters make vulnerable people to remain in poverty. World Disasters Report also affirms that poor people globally live in homes that are highly vulnerable to natural hazards. The report states that over 200 Countries, the consumption index indicated that the impoverished 20 percent of the people are more prone to live in delicate homes (Hallegatte *et al.*, 2017). The impact of natural hazards cause damages to destroy homes, infrastructures which leaves affected people homeless and displaced (Patel and Hastak, 2013:34). The provision of homes to the homeless within a shortest period of time is a great challenge for policy makers and relief agents. Rotimi and Wilkinson (2006) put emphasis on management and coordination of disaster relief

efforts and post-disaster reconstruction as a crucial action following a disaster. The rationale of the study was to have a greater insight and understanding of challenges of post-disaster housing rehabilitation and reconstruction in uThukela District Municipality. During disaster situations such as floods and fires, governments and agencies support affected communities with social relief and post-disaster recovery interventions. Khan (2015:03) stressed that when the immediate needs of the population are met and people have settled from the event, they begin to enter into the recovery phase which is the most significant in terms of long term actions.

Based on the aforementioned statement, the researcher defined the usage of rehabilitation and reconstruction in this study. As both terms are defined by scholars such as (Johnson, 2007, Hidayat, 2013, Hendrickson & Opdyke, 2020), Rehabilitation: aims to re-establish short-term operation of those essential services and infrastructure that have not suffered major damage, so as to continue providing necessary services to the population. Reconstruction involves more complex projects based on a more in-depth analysis of the damage and needs resulting from the disaster. Rehabilitation and reconstruction is disaster recovery phase which involves disaster management activities, where the central objective is to normalize lives of the affected communities. The researcher decided to use both terms in the research topic because disaster housing rehabilitation and reconstruction is an interrelated process which literally means repairs of partially damaged houses (rehabilitation) and rebuilding of totally destroyed houses (reconstruction). In the context of the study, housing rehabilitation is described as short-medium interventions such as repairs and provision of temporal shelters to displaced people whilst housing reconstruction is a long term interventions aimed at rebuilding damaged houses to normalise human settlement of the affected people. Repairing of instable housing structures and mud houses is not financial viable. It is prudent to underscore that the researcher uses rehabilitation and reconstruction as a holistic process to achieve the post-disaster housing rehabilitation and reconstruction in its totality irrespective of the stage or level. In promoting successful post-disaster events, it is critical to secure adequate resources to reconstruct and rehabilitate houses as well as other damaged infrastructure within a reasonable timeframe.

The study focused on assessing the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities. Furthermore, the study analysed disaster management policies and legal frameworks implemented during post-disaster housing rehabilitation and reconstruction; assessed the impact of disaster funding on the living conditions of the affected communities during post-disaster phase, evaluated the effectiveness of disaster response and recovery measures, identified challenges in post-disaster housing rehabilitation and reconstruction and proposed a guiding framework for post-disaster housing rehabilitation and reconstruction: hence, addressing the core research problem of this study.

#### **1.4 RESEARCH PROBLEM**

In 2011, the KwaZulu-Natal Province was severely affected by floods wherein houses were damaged. It is a fact that vulnerable communities are dependent on government to normalise the situation. According to disaster reports, the common problems found in reconstruction are associated with lack of adequate funding, post-disaster housing policies and strategies. In turn, this creates enormous pressure on government and aid agencies in responding to the needs of affected communities during disaster incidents. According to Bosher (2011), the investment and development could be wiped out by the impact of large scale disasters. The decision makers and recovery practitioners are faced with the most challenging exercise to deal with post-disaster reconstruction. It has unique political, economic, and social connections with humans (Clapham, 2009). However, increased complexities and uncertainties in a post-disaster environment mean that delivery of housing is more difficult than it is for conventional projects (Alexander, 2004).

Van Niekerk (2015) asserts that all government spheres have a role to play in disaster management and this must be undertaken in an integrated, multi-sectoral approach intended to reduce disaster risks related to identified hazards and vulnerability. He further stressed that the State has a critical role to play in providing disaster response measures to the affected communities. In some cases, relief efforts are intended to rehabilitate and rebuild affected houses and other infrastructure. There are common challenges experienced in implementing these programmes to the satisfaction of

affected communities. He added that “a disproportionate burden is felt by the poor and other marginalized sectors of the community, a burden which he claims often leads to sustained human rights violations, especially when prior vulnerabilities such as gender, race, or income levels, and natural hazards intersect” (Van Niekerk, 2005). This implied that the challenges of post-disaster housing rehabilitation and reconstruction are mostly associated with unavailability of financial resources to deliver disaster housing projects. Burns and Grove (2005:203) explain that the research topic identify the area of concern with the intention to get a better understanding of the problem. The community of Tholeni was severely affected by a disaster and were left homeless and the big concern is how this community has recovered from a disaster incident. The research question focused on how government disaster response and recovery measures were provided to normalise the lives of the affected community members of Tholeni. The researcher assessed the effectiveness of post-disaster housing rehabilitation and reconstruction measures post disaster incident in uThukela District Municipality within the Province of KwaZulu-Natal.

Given the scenario above, the following research questions were answered:

- How disaster management policies and legal frameworks are implemented to respond to post-disaster housing rehabilitation and reconstruction?
- What is the impact of disaster funding on the living conditions of the affected communities during post-disaster phase?
- How does government provide response and recovery measures for disaster affected communities?
- What are the challenges faced in post-disaster housing rehabilitation and reconstruction?
- What guiding framework can be proposed for post-disaster housing rehabilitation and reconstruction?

## **1.5 STUDY AIMS AND OBJECTIVES**

Mishra and Alok (2019:08) state the main purpose of any form of research is to get unknown facts and the truth which has not been exposed. Auriacombe (2001:49) and Creswell (2013) further stress that study objectives need to describe how the researcher is planning to resolve a research problem. Furthermore, the study

objectives must be specific and clearly articulated. The aim of the study was to assess the effectiveness of post-disaster housing reconstruction and rehabilitation in the Tholeni area under Alfred Duma Local Municipality, within uThukela District Municipality. The study investigated government response and recovery measures and assessed the impact of funding on the living conditions for affected communities during post-disaster phase. In view of the afore-mentioned: the following are the key objectives of this study:

- To analyse disaster management policies and legal frameworks implemented during post-disaster housing rehabilitation and reconstruction
- To assess the impact of disaster funding on the living conditions of the affected communities during post-disaster phase
- To examine the effectiveness of government response and recovery measures for disaster affected communities
- To identify challenges in post-disaster housing rehabilitation and reconstruction
- To propose a guiding framework for post-disaster housing rehabilitation and reconstruction

## **1.6 SCOPE OF THE STUDY**

The study assessed the effectiveness of post-disaster housing reconstruction and rehabilitation measures for affected communities in the Tholeni area. The focus of the study is confined to the Tholeni area under Alfred Duma Local Municipality within uThukela District Municipality specifically because this area is a mixed type of settlement characterised formal and informal dwellings which makes it highly vulnerable to disaster incidents.

The study targeted affected communities who are residents of Tholeni area because they were extremely affected by disaster incidents. It also targeted Disaster Management Practitioners who are custodians of disaster management in the Province, who have vast experience and knowledge, could add value and ensure validity of research objectives. Lastly, Officials from Department of Human Settlements were chosen because they are primary coordinators of post-disaster interventions and they have valuable experience and knowledge of the sector.

## **1.7 RESEARCH DESIGN AND PHILOSOPHICAL WORLDVIEW**

Masukume et al (2018) view research as the original contribution which follows the pursuit of truth, through observation, experiments and studying. Babbie and Mouton (2008) define research design as a plan outlining how the research will be undertaken. It needs to be emphasised that the value of a research study is entirely dependent upon how it has been designed. Consequently, the formulation of an appropriate research design represents a crucial factor for conducting meaningful research (Chivanga, 2018). The study used pragmatism philosophical worldview. Pragmatism is a research philosophy based on the epistemology that there is no single way to learning but many different ways of understanding because there are multi-realities (Creswell, 2013 and Kaushik & Walsh, 2019). The study used mixed method of both qualitative and quantitative approaches as a means of data analysis to study Disaster Management Practitioners and officials from Human Settlements as well as affected communities.

## **1.8 RESEARCH METHODOLOGY**

Mishra and Alok (2019:08) describe research methodology as systematic approach used wherein a researcher explains different stages taken to study a research problem. As concurred by Creswell (2009:34), research method basically addresses the question of how the study collects its data and which instruments the researcher used during data collection process. The study used both qualitative and quantitative approaches to gain an in-depth understanding of a post-disaster housing rehabilitation and reconstruction challenges rather than using a single research approach alone, it also improves validity of the study.

Quantitative method was also used to supplement and triangulate qualitative findings and for statistical data analysis purposes, hence data collection instruments included both qualitative and quantitative approaches. Triangulation is a process where a researcher uses more than one stand point to fully explain different views and complexity of human behaviour. This approach was adopted to enrich study findings where the research used different subjects and methods to gain different perspective about the research problem and to validate accuracy. The use of triangulation assisted

the researcher to uncover critical information which was not initially anticipated. The researcher used triangulation to get balanced views and perceptions from Disaster Management Practitioners, officials from Department of Human Settlements and affected communities about the same challenge of post-disaster housing rehabilitation and reconstruction to assist in obtaining rich responses about the problem. The researcher elected to use this approach because of interests in the views, perceptions and opinions of government officials, disaster management practitioners and community. The researcher used both primary and secondary data during data collection process. Sekaran (2006) explains primary literature as data attained first hand by the researcher on the variables of interest for the specific purpose of the study. Different secondary literature such as government acts, disaster management plans, technical documents, journals, scientific reports, newspaper articles, unpublished dissertations, unpublished government publications and policies were consulted and critically analysed to get relevant information on post-disaster housing rehabilitation and reconstruction. The study used purposive sampling for data collection from disaster management practitioners and officials from the Department of Human Settlements, because they have experience and knowledge of disaster management. The total number of sample size was 367 consisting of: 8 officials from the KZN Department of Human Settlements; 28 Disaster Management Practitioners and 331 affected communities.

### **1.8.1 Data Collection Methods**

Research instruments are research tools used to collect information or data with the intention to analyse and check validity of the study (Mishra and Alok 2019). Sekaran (2003:85) asserts that data collection methods include interviews, face to face, telephone interviews, self-administered interview guides sent through email, as well as the use of audio recording. Creswell (2018) further described research instruments as “simply devices for obtaining information relevant to research project, and there are many alternatives from which to choose”. Data Collection tools were developed based on literature and current realities within the discipline. In this research two instruments were used: a questionnaire and an interview guide. Self-administered questionnaires were used for Disaster Management Practitioners. Structured interviews were conducted with Officials of the Department of Human Settlements and lastly, interviewer-administered questionnaires were conducted with affected community of



Tholeni. The researcher decided to use this approach to ensure validity and reliability of the study.

## **1.9 VALIDITY AND RELIABILITY**

Validity is an assessment of how consistently research instruments produce study results and address the research question (Sekaran and Bougie, 2013:52). Validity in research is important to test and validate results because failure to conduct this exercise can result in research reports being poorly studied and construed, in the study failing to achieve its objectives. The correctness and accuracy of instruments was also tested through making them available to selected participants and administered to confirm validity. Silverman (2006:90) also affirms that validation of qualitative study uses mixed methods to compare study findings to test collaborative statements. The researcher used mixed approach methodology in order to test validity of results through triangulation and to see whether the results collaborated with one another. The research findings were validated to ensure that research objectives were achieved.

“Reliability is concerned with the findings of the research and relates to the credibility of the findings” (Welman & Kruger 2005:145). Scholars further explained that there should be existing correlation across the entire sample and this inter-correlation of activities is used as an index of reliability. The researcher aimed to ensure consistency in order to maintain reliability and ensuring that data collection method yielded consistent findings. The inter-correlation of study between research question, research objectives, research methods, research instrument used, sampling and study findings. According to Thomas (2009:116), “reliability refers to the extent to which a research instrument such as a test gives the same result on different occasions”. The study objectives were broken down into five different themes to ensure linkage and consistence of research findings with research questions and study objectives.

## **1.10 PRETESTING OF STUDY**

The interview questionnaires were pre-tested to ensure that all items were clear and understandable. There should be no research instruments such as questionnaires deemed to be ready for use until they have been pre-tested (Ngulube, 2005:136). Dawson (2009:98) further explains that a pilot study is when research instruments are

tested on the people who will not participate in the study. The pretesting population consisted of provincial and municipal practitioners, government officials who are experts in the field and who did not participate in the study. Participants corrected wording and format of research instruments: interview guide and questionnaire. Pre-testing was piloted to three different respondents who did not form part of the study, namely: Department of Human Settlements, Provincial Disaster Management Practitioners and Community members before undertaking a full scale study. The questionnaire and structured interview guides were used targeting sample populations who are disaster management experts, officials from Department of Human Settlements and affected community.

### **1.11 DELIMITATIONS OF THE STUDY**

This study focused on assessing the effectiveness of disaster housing reconstruction and rehabilitation measures for affected communities' post-disasters by confining it to the geographical area of uThukela District Municipality in the disaster affected area of Tholeni, within Alfred Duma Local Municipality. This area was selected because it was severely affected by disasters and is regarded as a vulnerable area to disaster incidents. The study identified officials from KZN Department of Human Settlements and Disaster Management Practitioners. The participation of government officials ensured that research results had balanced opinions and perspective from all experts to influence policy and practice for effective implementation of post-disaster housing rehabilitation and reconstruction.

### **1.12 DATA INTERPRETATION AND ANALYSIS**

According to Creswell (2009), data analysis is a process where collected research information during an interview process is interpreted, using thematic analysis. He further explained that data analysis stage is where properties, events, things and persons are categorised according to their characteristics. The data analysis assists the researcher to organise data collected according to thematic areas and also assist the researcher to gain a meaningful understanding of data collected. During data analysis stage is when the researcher gained an in-depth understanding of data collected, according to thematic areas and coding. This assisted the researcher to make meaningful sense, discover lineage of the study and this helped the researcher

to avoid prejudice when analysing data. The research information included interview transcript, field notes, images, audio recordings and documents.

The researcher used thematic data analysis broken into the following sections: Section A: biographical information; Section B: disaster management policies and legal frameworks implemented during post-disaster housing reconstruction; Section C: the impact of funding on the living conditions of the affected communities during post-disaster phase; Section D: the government response and recovery measures for disaster affected communities; Section E: challenges of post-disaster housing reconstruction; and Section F: proposed a guiding framework for post-disaster housing rehabilitation and reconstruction. Data collected was captured in thematic areas to enable proper sorting and quick retrieval of information so that data could be analysed and compared.

For qualitative data, the researcher used descriptive or narrative analysis whilst in quantitative data, the researcher used Microsoft excel to analyse quantitative data, putting meaningful sense to numerical data. This was done through graphs to demonstrate statistical representation by trends and correlation between two or more items. The qualitative data was used mainly to test validity of qualitative findings and to ensure that study results were reliable. This is not in conflict with the research design. The research results were used to code, capture, organise and interpret in thematic areas.

### **1.13 ETHICAL CONSIDERATIONS**

Ethics in research is the belief that social scientists hold about what is right and wrong for the researchers to do while conducting research, including the principle of informed consent and confidentiality. He further stated that the researcher must always ensure that study participants are protected in terms of their dignity and respect by maintaining ethics at all times (Sekaran, 2006). The researcher considered all ethical issues during the course of the study. The researcher asked and received permission from key stakeholders. The Durban University of Technology, Ethical approval was obtained from Ethics Committee, Research Ethics Clearance Number No: 48/17FREC. The researcher explained the study objectives to the participants, permission to participate in the study was granted and consent form was signed after

a clear explanation of study objectives. Participants were informed of voluntary participation and the study would maintain confidentiality. Respondents were allowed to withdraw at any time if they felt uncomfortable and it was explained that the information would only be used for the purpose of the research.

## **1.14 CHAPTER OUTLINE**

The chapter outline presented how the structure of the dissertation in terms of all chapters. The dissertation consists of six chapters and its contents explained in each chapter below:

### **1.14.1 Chapter One**

The first chapter presented the introduction and background of the study. The study discussed research problem, significance of the study, study objectives, research design and research methods, study validity and reliability and ethical considerations.

### **1.14.2 Chapter Two**

The second chapter analysed the literature reviewed as it pertains to the study as a whole. The literature review outlined theoretical framework used and gave a broader understanding of related literature to assess gaps in order to address research problem and study objectives. The chapter discussed legislative context for disaster management.

### **1.14.3 Chapter Three**

The third chapter discussed research methodologies used in the study. The study provided an insight into the research design, philosophical worldviews, research methodology, study population, sampling, research instruments, data collection and analysis undertaken in order to draw conclusions.

### **1.14.4 Chapter Four**

The fourth chapter presented data analysis and interpretation of results. This chapter gave an overview of the outcomes of the study in line with research problem and study objectives.

#### **1.14.5 Chapter Five**

The fifth chapter outlined a proposed guiding framework for post-disaster housing rehabilitation and reconstruction. It discussed conceptualisation of the framework, proposed framework and operational guide for effective implementation of the proposed framework.

#### **1.14.6 Chapter Six**

The sixth chapter is the final chapter and concluded with summary findings of the study in line with study objectives: study recommendations, recommended future studies and conclusion to the study.

### **1.15 CONCLUSION**

This chapter presented the introduction and background of the study, research problem, research objectives, significance of the study, research design and philosophical worldview, research methodology, validity and reliability, delimitations of the study, data interpretation, ethical considerations and chapter outline. The chapter presented the process and procedure on how the study was conducted to answer the research question and study objectives. The next chapter presents the literature reviewed and legislative context for disaster risk management, with special focus on post-disaster housing rehabilitation and reconstruction.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter critically discusses theoretical framework for the study. It further analyses literature review of disaster management as a field and specific reference to post-disaster housing reconstruction. This chapter further examines literature and case studies related to frameworks or strategies used in post-disaster housing reconstruction. Finally, the chapter discusses disaster management legislation and policies.

#### **2.2 THEORETICAL FRAMEWORK**

A theoretical framework comprises of the theories expressed by experts in the field of a particular study. The framework can be used a theoretical background to draw upon data analysis and interpretation of results contained in the study (Kivunja, 2018:46). It can also be regarded as a research tool influencing direction of data analysis (Creswell, 2013:26). Theory also provides a framework to understand a particular phenomenon and to point us towards areas of potential concern (Phillips, 2016:66). The theoretical framework as a conceptual frame guiding the researchers as to how to make logical sense of the relationship of critical factors identified as important for the study (Serekan, 2000 & Kivunja, 2018:46). Swanson 2013:122) further asserts that that theoretical framework is a structure that can hold and support a theory of a research of study. The researcher decided to use systems theory as a theoretical framework approach which guides the study in order to set the stage for understanding the challenges associated with the phenomenon: post-disaster recovery, particularly barriers experienced as community moves towards normalising the situation post-disaster incident.

#### **2.3 RELEVANCE OF GENERAL SYSTEMS THEORY**

The study used general systems theory to understand the interdependence of community, organisations and environment in post-disaster housing rehabilitation and reconstruction. According to Lai and Lin (2017), the systems theory refers to the systems approach that is two-pronged. As such, it focuses largely on the

organisation's relationships and interactions among its components. Khuzwayo (2020) explained that systems theory has been successfully applied in most varied settings namely: industrial and social world. Barely existing literature conceptualises and relates to post-disaster housing rehabilitation and reconstruction. It has also emerged from biology (Boulding, 1956 & Von Bertalanffy, 1951); mechanical engineering (Ashby, 1954 & Wiener, 1948); organisational communication (Parson, 1951 & Poole, 2014). Communication and public relations (Jones (2005:23) and Pavlik (1987:67) Mansoor and Williams (2018:34) expresses a similar thought but also used systems theory to assess delivery of health services, education and infrastructure development. McElreath (1993:72) explains that the use of systems theory in social science aid to gives a clear explanation and forecasts the behaviour of organisations. Systems theory as used by (Khuzwayo, 2020) illustrates the interaction or interdependence that exists among the internal sub-systems in a schooling system which indicates that the researcher made a meaningful sense of voices in a school setting (where educator and non-educator (governing body) which is supra-system interact to develop a sound financial school system. Failure to harness this relativeness and interdependence will influence or collapse the process of team work for effective management of the school.

As described by Miller (2003), Lai and Lin (2017) & Khuzwayo (2020), systems theory focuses on interactions and between elements towards solving a particular problem in a systematic approach. Miletic and Sorensen (1990:107) further make an extension of this theory in relation to disaster management, where they state that disaster losses are caused by interaction amongst three systems (Human, physical and built environment). During the first and historic application of systems theory, the organisational theorist Kats and Kahn (1966) demonstrated that systems theory could also be applied to the study of organizations. Miller (2003:103) states that the development of theory moved to a traditionalist view where organisations were viewed as complex in nature requiring interaction with the environment. Poole (2014) cited in Khuzwayo (2020) also specifies communication in an organisation as one pivotal part of the systems. This interpretation and analysis from different scholars has a common lineage which showed a clear description of systems theory and its interaction and interdependent elements within the entire organisation, sub-systems and environment. Van der Walddt and du Toit (1997:65) further stress the point that organisations and

people may be regarded as a system when its operations and the way it works is being investigated. Organisations use an open system which interacts with the environment, wherein input is received from the environment, the input ought to be converted through the process and the input return back to the environment as outputs (Van der Waladt and du Toit , 1997:65) (as illustrated in Figure 2.1)

The systems theory is applicable to this study and the researcher discussed the conceptualisation of this theory to post-disaster housing rehabilitation and reconstruction whereby plans, budget, personnel could be defined as inputs. The management processes should convert inputs for effective delivery of post-disaster housing rehabilitation and reconstruction. This process must be informed by operational plans or disaster recovery plans of the Department of Human Settlements and municipalities. This also includes monitoring mechanisms of post-disaster housing reconstruction, quality control assurance and management of contractors. The actual delivery of post-disaster housing rehabilitation and reconstruction could be defined as the outputs. There is no public institution that can function in isolation from the environment. This proves the wholeness of the system and it interdependent subparts or subsystem (McElreath, 1993; Van der Waladt and du Toit, 1997; Grunig *et al.*, 2002, Miller 2003, Poole, 2014, Lai and Lin, 2017 and Khuzwayo, 2020).

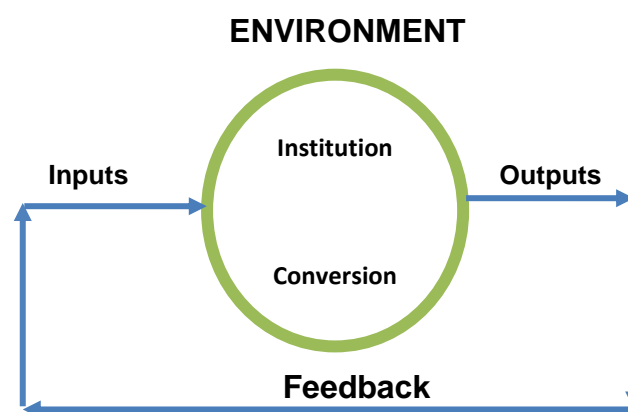


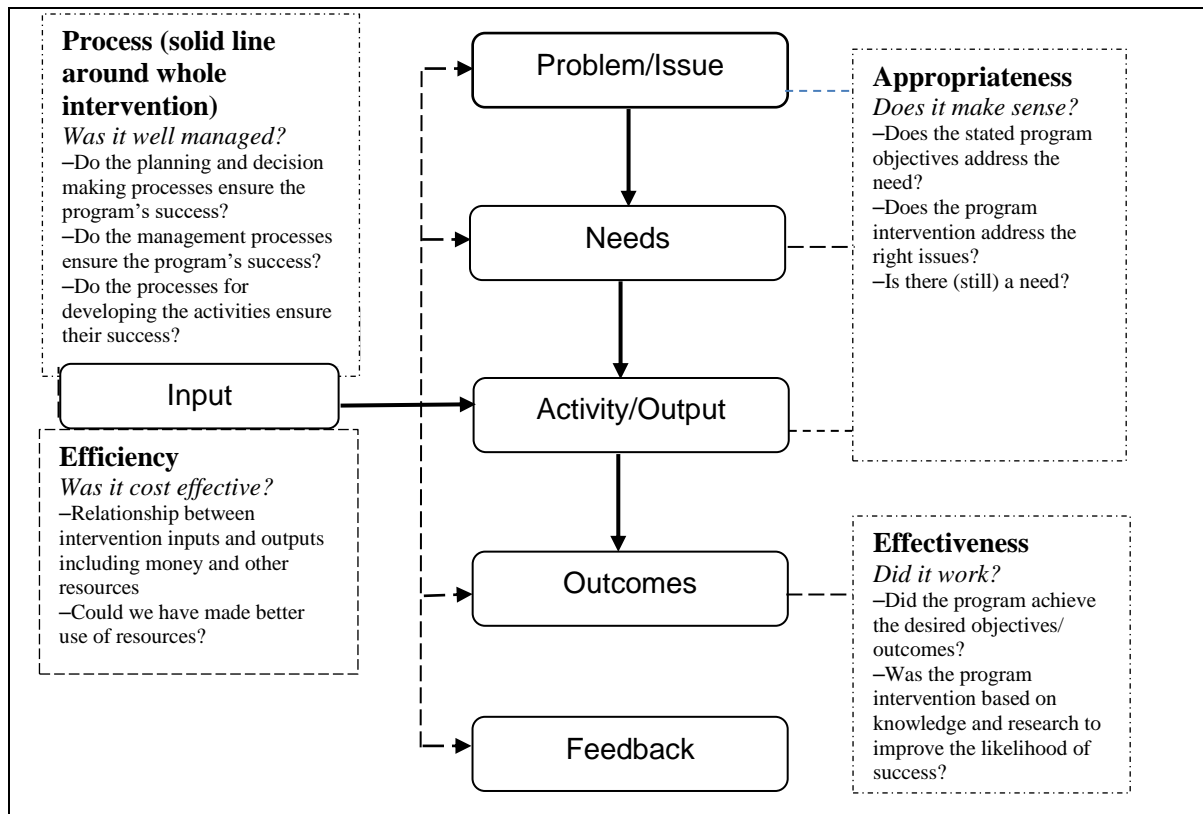
Figure 2.1 Basic Elements of systems approach  
Adapted from (Van der Waladt and du Toit, 1997)

The diagram below illustrates and describes the relationship between subunits within the system and it also showed feedback model (Boulding, 1956 and Skyttner, 2005).



Skyttner (2005) further explains that this feedback model is a process where the cross interaction within the system and environment occurs.

As proposed by Skyttner (2005), there is a thin line between systems theory and evaluation process, when evaluation is undertaken, systematic collection and analysis of information encompasses the wholeness of the system within the organisation. He further indicates that evaluation uses organisational information to analyse and make judgement usually about the programme or activity. The analysis is usually about the efficiency, effectiveness and appropriateness of the programme or activity (Skyttner 2005; Owen 2006; Australasian Evaluation Society 2010; Ryan 2014 and The Sphere Project 2015). These terms could be defines as follows: The effectiveness – assess the ability of the programme or activity to achieve its objectives; the efficiency – the ability to deliver expected outcomes with limited resources, assess whether resources are being used efficiently. The second evaluation terms consider the relationship between inputs and outputs. Lastly, the appropriateness – assess whether interventions are meeting the objectives within the policy context. The diagram below showed this relationship between subunits with the system. The researcher can draw conclusions from Figure 2.1 and Figure 2.2. These figures outline the interaction of the systems as explained by authors above. Figure 2.1 explains the conversion of inputs into outputs and feedback flow loops. Figure 2.2 gives a clear relationship between evaluation themes. The researcher outlined commonalities and relationship between the two diagrams and explanation of systems theory in the context of post-disaster housing reconstruction. The section below unpacks the themes (process, appropriateness, efficiency, and effectiveness) and their application to the study through the lens of Systems Theory.



**Figure 2.2: Relationship between Logic Framework with key evaluations themes and Systems Approach Theory**  
 Adapted by Researcher from: Ryan (2014) & Skyttner (2005).

As indicated above, there is an intrinsic relationship between evaluation themes and systems theory model. The evaluation themes or logic frame is deep-rooted from Systems Approach Theory. The researcher unpacks this theory in relation to the application to the study. The relationship between these factors could produce negative or positive results. As outlined in Figure 2.2, (Skyttner 2005; Owen 2006 and Ryan 2014) outlined and explained the systems approach theory. The narrative inclusively describes the **problem** as correlated or having a relationship on how the community needs are addressed. In the context of this study, the problem is the housing needs for the affected communities. The **input** relates to the outputs or activities. The input represents disaster resources such as policies, finances and institutional capacity. The efficiency considers whether resources allocated to deliver post-disaster housing projects were being used consciously (i.e. the relationship between inputs and outputs). This includes examining value for money and quality of work undertaken. The **process** represents planning, decision making and management processes, to assess whether post-disaster housing projects were properly monitored and managed. This also includes the element of efficiency and

effectiveness of management processes. The **output** evaluates the appropriateness of whether desired objectives address community needs and what has been achieved to address housing needs of the affected communities. Lastly, the **outcome** examines effectiveness of the programme: whether the post-disaster housing interventions meet desired objectives. The effectiveness is measured in terms of the outcomes rather than processes. The funding, quality and time factor become critical features to assess effectiveness of any programme (Vihanvati and Mulligan, 2017). The researcher adopted the same approach for post-disaster housing rehabilitation and reconstruction.

It is critical to ensure that **feedback** is maintained in order to take corrective measures for continuous improvement. Therefore, the researcher used systems theory to examine efficiency and effectiveness of post-disaster housing rehabilitation and reconstruction programmes implemented to address housing needs of affected community members of Tholeni area. Therefore, it could be concluded that the community problems and community needs within the context of post-disaster housing rehabilitation and reconstruction cannot be addressed in isolation within the system. The interactiveness and interdependence of the system and its subcomponents is the glue that binds objects and events together in order to produce expected outcomes. It is significant to review general systems theory to explore how disaster management institutions have dealt with post-disaster housing rehabilitation and reconstruction in response to the needs of affected communities. In the recovery phase, the main focus is to restore community. This encompasses recovery from all aspects of disaster impacts in order for a community to return to normality (UNSIDR, 2009a). The researcher used systems theory to evaluate the wholesomeness and interrelatedness of organisational systems and to explore how effective is government response and recovery measures to address the needs of affected community of Tholeni area.

## **2.4 BACKGROUND TO DISASTER MANAGEMENT**

Disaster management refers to the continuous process and promotes integrated multi-sectoral, multi-disciplinary approach. It also encompasses process of planning, organising, coordination, control and monitoring. Disaster Management also promotes implementation of measures aimed at preventing or reducing disaster risk; mitigating

the severity of disasters; provision of rapid and effective response; post- disaster recovery and rehabilitation (Republic of South Africa, 2003). Warfield (2008:17) also defines disaster management as a process that aims to reduce disaster risk, or minimise potential impact or losses from imminent hazards, the potential losses from hazards. He further elaborates that rapid response and appropriate assistance to affected communities should be provided to ensure effective recovery. Furthermore, UNISDR (2009b) also defines disaster management as systematic process for administration and operational capacities of organisations to implement strategies and policies to lessen the impact of hazards and imminent disasters. The new era of disaster management in South Africa is focusing on the proactive approach rather reactive approach which was used in the previous years of civil defence and civil protection policies. This was exacerbated by existing structures and legislative framework which were less effective in terms of their operations and could not cater for the entire population (Van Niekerk, 2005:124). Cabane (2010:06) further explains that the state function of civil protection was developed to protect minority white citizens during the apartheid era.

In post democratic South Africa, after 1994, disaster management policies were overhauled so the country had to align itself with international developments which maintained its strong foundation on disaster risk reduction. The democratic government realised the importance of developing policies aligned with international risk reduction agenda in order to ensure disaster prevention, mitigation, preparedness, relief and recovery. This approach materialised following call made by International Decade for National Disaster Reduction (IDNDR) to all member States to revisit their approach in dealing with disasters. The transformation journey of disaster management led to the promulgation of (Republic of South Africa, 2003) Disaster Management Act which was proclaimed as a new era for disaster management in South Africa. The Act was followed by intensive processes and consultative sessions that gave birth to the development and publication of National Disaster Management Policy Framework in 2005. The Policy Framework set clear guidelines and implementation framework for the Act. The framework promotes integrated and coordinated disaster management activities in all spheres of government. The policy reform brought a paradigm shift from civil protection to proactive approach towards disaster risk reduction.

### 2.4.1 Disaster Management Cycle

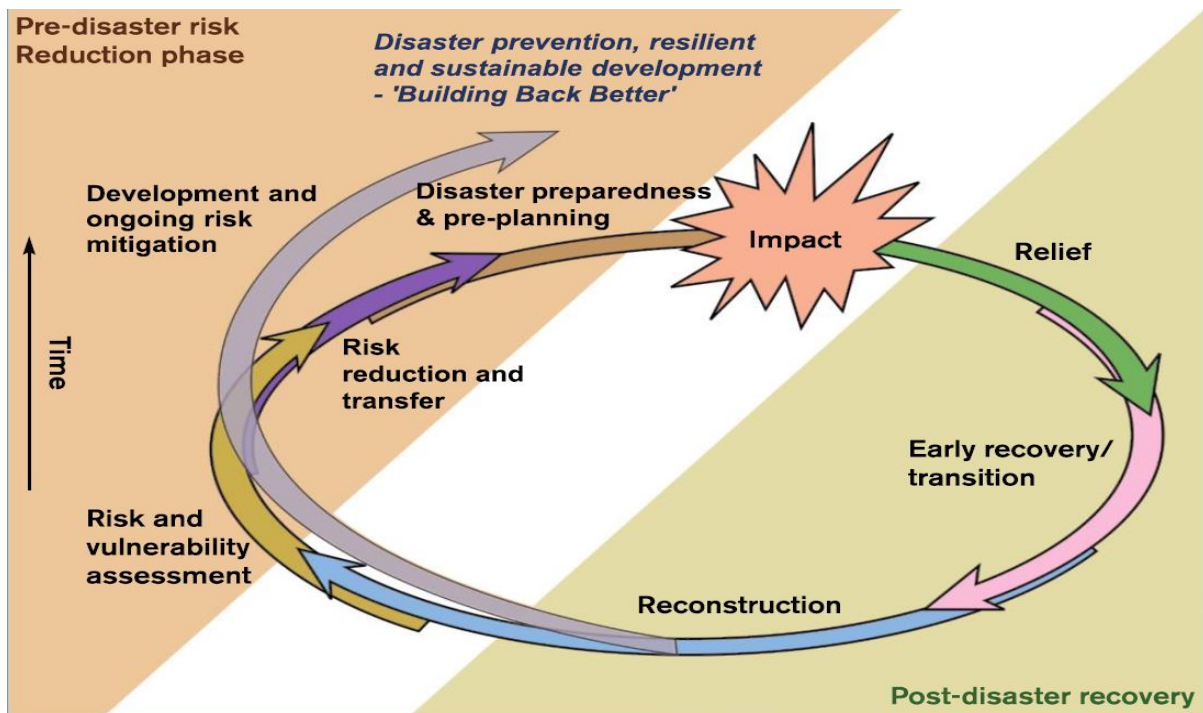
The disaster management cycle showed on on-going process for planning, prevention, mitigation, response and recovery. Disaster management cycle outlines different phases of disaster management activities undertaken pre-disaster phase, during disaster phase and post-disaster phase. Carr (1932:44) was the first scholar who developed different phases of disaster management activities involved in the aftermath of disasters. Later on, other scholars classified disaster management activities such as early warnings, prevention, mitigation, preparedness, emergency relief, response, recovery and reconstruction in different phases (Barton, 1969 & Mileti, Drabek and Haas, 1995).

As developed by scholars like (Alexander, 2002; Amin, Cox, & Goldstein, 2008; Lettieri, Masella & Radaelli, 2009; Perera, Alinden & Amaratunga, 2010 and Amaratunga and Haigh, 2011), disaster management cycle has four stages, namely: preparedness mitigation response & recovery or reconstruction. These stages cannot operate in isolation. However, they overlap and they are interdependent.

**Table 2.1: Stages of disaster management cycle**

Stage	Description
Mitigation	Focuses on disaster risk reduction measures through minimizing the effects of disasters e.g. enforcement of building codes and zoning; risk assessment, hazard resistant construction, vulnerability analyses and public education (UNISIDR, 2009b).
Preparedness	It is a pre-disaster phase that deals with development of plans, preparedness on how to respond, capacity development e.g. preparedness plans; early warnings, emergency exercises/training etc. (Ophiyaandri, 2013).
Response	During disaster phase focuses on rapid response interventions, coordinated efforts to minimize the impact of the hazards e.g. humanitarian aid, restore services, psycho-social support, search and rescue etc. (Alexander, 2002 and Hidayat, 2013).
Recovery/Reconstruction	Post-disaster phase deals with post-disaster activities of returning the community to normality e.g. repairs of damages, provision temporary and permanent housing; medical care, etc. (Hidayat, 2013).

Table 2.1 gives an overview of disaster management stages and full detailed description of each stage. These stages have evolved over time with the aim of re-purposing paradigm shifts for disaster management theory and practice.



**Figure 2.3: The Disaster Management Cycle (adapted from Lloyd-Jones, Mulyawan & Theis, 2009)**

Lloyd-Jones, Mulyawan and Theis (2009) confirm that the disaster management cycle is interrelated and approaches to use the cycle could differ from key stakeholders and different programmes being implemented at that time. They state that the disaster management cycle can be implemented in different phases at the same time. Figure 2.3 showed the relationship between phases of disaster management cycle.

## **2.5 THE CHALLENGES OF POST-DISASTER HOUSING RECONSTRUCTION**

Post-disaster housing reconstruction is a process that requires coordinated efforts for management of resources to ensure effective delivery of post-disaster housing reconstruction. Cosgrave (2008) affirms that one of the challenges of post-disaster housing reconstruction is the prolonged process in some developed countries to deliver housing assistance to displaced families within a shortest possible time. Affected communities are defined as vulnerable people, the longer they wait for housing assistance the longer they remain vulnerable to future disasters. Oxfam (2005) further explains that most challenges are due to the state of readiness of institutions in terms of adequate resources such as finances, cost escalations, supply of building material and labour to provide rapid response to housing needs of affected communities.

## **2.6 ROLE OF COMMUNITIES IN POST-DISASTER RECONSTRUCTION**

Many studies have revealed that the role of community participation is crucial in post-disaster reconstruction and it can serve as an indicator whether the projects will succeed or not (UNDRO, 1982; ICRC, 1994; Lawther, 2009; Lyons, 2009; IFRC, 2011). Jha, Jennifer, Daniel & Stephen (2010) encourage empowerment of communities and active involvement in all stages of post-disaster reconstruction during this process as it motivates beneficiaries to contribute with their skills and knowledge. They further emphasize well-coordinated efforts with key stakeholders and consultation with communities during the complex phase of disaster management. Jha *et al.*, (2010) further indicate that communities must play a critical role during policy formulation, planning for disasters, risk mitigation, dissemination of information, disaster risk reduction and response and recovery. The case study of Banda Aceh, Tsunami in 2004 revealed how powerful the role of the community can play, the community of Aceh disseminated information about impact of a disaster when many government units could not function or reach affected communities. The community assisted disaster relief efforts in order to expedite the process. Steinberg (2007) also stresses that this kind of involvement established rapport and foundation for the community to be involved during the planning stage for post-disaster recovery. He further states that government and agencies should provide feedback to the community to build trust and ensure accountability (Steinberg, 2007). Davidson, Johnson, Lizarralde, Dikmen & Sliwinski (2007) and Barenstein (2010) acknowledge involvement of communities through planning stage, needs assessment, input on building techniques and requirements and type of building materials required. The literature suggested that community participation is crucial in all stages of disaster management cycle. Studies revealed that recovery projects cannot be successful without the involvement of communities.

## **2.7 POST-DISASTER HOUSING RECOVERY**

Government and agencies have responsibility to implement post-disaster housing after a disaster (Roosli & Collins, 2016). There are two types of interventions provided: temporal shelter for immediate relief and permanent housing for long-term settlements (Roosli & Collins, 2016). KwaZulu-Natal Department of Human Settlements provides housing assistance to affected communities in a form of temporal housing and

permanent housing (KZN-DHS, 2012). Permanent housing is defined as last intervention or final solution to fulfil the housing needs of affected communities in a more sustainable and resilient manner. The provision of permanent housing is not only about physical structure but also serves to protect the rights to human dignity, respect and protection of rights of beneficiaries by satisfying their living requirements (Roosli & Collins, 2016 and The Sphere Project, 2018).

### 3.7.1 Post-Disaster Housing Patterns

Quarantelli (1982:12) & Quarantelli (1995:13) explain that post-disaster housing recovery has four stages and a proposed turnaround time after a disaster. The patterns of post-disaster housing are as follows: emergency shelter-within hours; temporary shelter –within a day or two; temporary housing – preferable within weeks; and permanent housing – probable within a few years. However, the terms of ‘sheltering’ and ‘housing’ was used in a somewhat inconsistent way. Therefore, Quarantelli (1995:34) proposed a differentiation between ‘sheltering’ and ‘housing’. The distinction between: sheltering and housing are defined by processes and actions involves in each stage. Sheltering refers to immediate relief during and after occurrence of a disaster. Housing refers to returning to normality post disaster occurrence. Johnson (2007:67) presents and explains distinction of types of housing intervention into four patterns for post-disaster housing:

**Table 2.2 Types of post-disaster housing pattern**

Type of intervention	Description
Emergency Shelter	It is defined a place or facility used to temporarily accommodate displaced families or homeless people, when they cannot live in their previous residence due to natural disasters, wars, violence etc. It is selected based on proximity, safety and availability. It is used within hours or immediately post disaster incident and could be used for one night to a couple of days during emergency situation. (UNISDR,2009)
Temporary shelter	There is a thin line between emergency shelter and temporal shelter. However, temporal shelter is an interim structure or facility which can be made available within one to two days to house displaced families such as tents, portable houses, prefabricated structures and public facilities (Tierney, Lindell and Perry, 2001). It can be used for few weeks after the disaster.
Temporary housing	It is a temporal arrangement or accommodation aimed at returning daily activities to normality. However, displaced



	families will be living in temporal housing until permanent housing solution is provided to the victims. It could be done within weeks and can take the form of rented apartments, transit camps, small shack & prefabricated structures (Johnson, 2007:67).
Permanent housing	It involves displaced families returning to their new rebuilt homes or repaired original homes where families will live on permanent basis. It is all about provision of permanent housing solutions to the displaced families (Johnson, 2007:67).

As outlined in Table 2.2, the four patterns of housing solutions after a disaster are not linear and often times overlap (Quarantelli, 1995:36). Johnson (2007) further states that home owners are likely to experience or not experience all stages and some stages may be applied at the same time depending on resource availability. He further argues that the displaced population after a disaster, need to confront the fact that the displacement might take longer than expected and they might live in emergency or temporal basis for extended longer recovery period. Therefore, putting permanent housing in place is of primary importance on a recovery agenda after a disaster. This present study sheds the spotlight on housing recovery with respect to permanent housing reconstruction. According to Dunne and Mhone (2003:03), the impact causes damages to infrastructure, property, houses, disturbs normal livelihoods, displaces families and disrupts community networks. The researcher places the four patterns at the centre of the study (Quarantelli, 1982; Bolin, 1993; Quarantelli, 1995; Tierney *et al.*, 2001 and Johnson, 2007). The main objective is to protect human dignity and fundamental rights of voiceless people, which is the basic right to have shelter. The researcher believes that it is critical to underscore the point that housing interventions might differ because of community needs, magnitude of the impact and availability of resources to quickly provide houses to homeless people, irrespective of what type of intervention is provided. It is critical that government is able to quickly deliver post-disaster housing rehabilitation and reconstruction to those who cannot help themselves.

## **2.8 FUNDING MECHANISMS FOR DISASTER RESPONSE AND RECOVERY**

The Disaster Management Act 57 of 2002 defines funding arrangements for disaster response and recovery. “Section 56 (3) of the Act requires the organs of state to set aside a percentage of their budgets for post-disaster recovery efforts”. The importance of rapid response in the event of a disaster is crucial. The legislation further states that “funds need to move quickly to provide rapid response and recovery efforts”. “The Act places the onus for rehabilitation and reconstruction of infrastructure on the organ of state responsible for maintaining such infrastructure”. “Rehabilitation is not limited to infrastructure repair; it also includes rehabilitation of environment and communities” (Republic of South Africa, 2003).

In 2005, South Africa revised funding mechanisms for disaster risk management. However, there are notable challenges by Van Niekerk and Visser (2009). Firstly, different spheres of government are not fully adhering and applying current legislative framework, institutional and funding mechanisms. Secondly, disaster relief measures and allocation of funds intended for affected communities takes longer because of the lengthy bureaucratic processes to be followed by government. Thirdly, reprioritisation of funds intended for development to provide rapid response to the impact of disasters. Lastly, authors further indicated inadequate funding as a great challenge to address the effects of disasters in municipalities and provinces (Van Niekerk & Visser, 2009).

## **2.9 THE UNIVERSAL DECLARATION OF HUMAN RIGHTS**

The Universal Declaration of Human Rights (2015) states that “everyone has a right to adequate housing” and “everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control” (UDHR, 2015). Cosgrave (2008) affirms that one of the challenges of post-disaster housing reconstruction is the prolonged process of delivering housing assistance to displaced families within a shortest possible time. The Universal declaration of human rights charter seeks to protect human dignity and the life of the communities during difficult circumstances (The Sphere Project, 2004). Furthermore, shelter is important to provide security and safety as well as to reduce

risk of illnesses or diseases. The immediate interventions of temporal shelter reduces risk exposure, limits the outbreak of diseases and allows affected people to move quickly out of community shelters which might be needed for other activities.

## **2.10 SPHERE MINIMUM INTERNATIONAL STANDARDS FOR HUMANITARIAN RESPONSE**

The Sphere Project was established in 1997 by Red Cross, Red Crescent Movement and a group of humanitarian NGOs. Its main aim is to improve, increase accountability of aid and the quality of humanitarian aid. The handbook is an international barometer that set acceptable standards for planning, implementation and monitoring humanitarian response at a large scale. The philosophy of the Sphere Project has two core principles focusing on affected communities: right to life dignity of the affected people and right to receive humanitarian assistance to ensure human suffering is contained and minimised. “These standards are grounded in beliefs and broader rights declared in the Humanitarian Charter” (The Sphere Project, 2018).

The access to housing, shelter or settlement is one of the four minimum standards for key role players to meet in any humanitarian response. The minimum standards for shelter and settlements have practically expressed the right to adequate housing and how humanitarian response should honour this right. The Sphere Project (2018) directs that shelter and settlements should be provided within the shortest possible time to save lives in the initial stages of a crisis. Therefore, this means that the turnaround time as suggested by Johnson (2007) and Quarantelli (1995) to protect right to humanitarian assistance and right to live in dignity of affected communities should be addressed. The State has an obligation to ensure that all vulnerable groups affected by disasters have access to adequate housing. The core philosophy of the Sphere Project promotes participation of affected communities in all stages of post-disaster recovery (The Sphere Project, 2018).

## **2.11 SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION (2015 - 2030)**

The Third World Conference on Disaster Risk Reduction held from 14 to 18 March 2015 in Sendai, Miyagi, Japan, adopted post-2015 framework for disaster risk reduction. In this World Conference, Member States renew their commitments by setting performance targets for disaster risk reduction, building resilience to disasters

and sustainable development (UNSIDR, 2015). For the effective implementation of the Framework across all sectors and levels of government, The World Conference adopted key four (4) priorities which should be taken into account:

- Understanding disaster risk;
- Strengthening disaster risk governance to manage disaster risk;
- Investing in disaster risk reduction for resilience;
- Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.

For effective implementation of disaster risk reduction, the framework calls for all key role players across sectors and all levels of government to take into consideration these key priorities by incorporating them into policies, plans, budget and by building necessary institutional capacity in line with regulations (UNSIDR, 2015). The framework also identifies post-disaster housing reconstruction as an opportunity to redress, reinforce integrated disaster risk reduction measures through provision of effective response and resilient infrastructure embodied key priority “Build Back Better” BBB (UNSIDR, 2015). Bilau, Witt and Lill, (2018) further stress that BBB promotes effective implementation of post-disaster reconstruction taking into account of risk reduction measures and strengthen community resilience during post-disaster recovery. The researcher draws the conclusion that the principle of BBB should be integrated at a planning stage for post-disaster recovery. The government and implementing agents should prioritise the BBB principle during assessment and costing of damages. This would assist in ensuring that such needed integration is done and the BBB principle is implemented to reduce disaster risks.

## **2.12 GLOBAL IMPACTS OF DISASTERS**

The impact of natural hazards cause damages to homes, infrastructures and this leave affected people homeless and displaced (Patel and Hastak, 2013:34). This is also affirmed by World Disasters Report which also confirms that poor people globally live in homes that are highly vulnerable to natural hazards (World Bank, 2020). The report states that over 200 States, the consumption index indicated that the impoverished 20 percent of the people are more prone to live in delicate homes. The most significant number of disasters, total of 308 in 2019, were largely triggered by climate change and

weather related hazards. According to (Hallegate *et.al*, 2017), the impact of disasters makes vulnerable people remain in poverty. These disasters had claimed lives, caused displacement of families, caused human and physical destruction, diseases, injuries, mental and social wellbeing (Lindell & Prater, 2004; World Bank, 2020). According to World Disaster Report, in 2019 alone, disasters had claimed the lives of 24,336 and affected 97, 6 million people in more than 128 countries. Natural hazards such as drought, floods and storms are leading the pack in terms of impact caused by disasters followed by outbreaks of infectious diseases (World Bank, 2020). Regardless of concerted efforts made by various key role players in disaster management, however, the impact of disaster has caused severe damages.

### **2.12.1 Economic and Social impacts of disasters**

The global economic impacts of disasters are astronomically high. In 2019 alone, the costs of disaster losses were estimated at 150 billion US dollars. The major contributors of such huge financial implications are severe weather events or climatological disasters (World Bank, 2020). The reality of climate change is pushing more than 100 million people back to poverty and the impact is being borne by the population in the world's poorest countries. The forecast indicates that by 2050, more than 140 million in Africa, Asia and America might be displaced as a result of severe weather events or climate change and this have detrimental effect on the global economy (World Bank, 2018).

## **2.13 IMPACT OF DISASTERS IN SOUTH AFRICA**

South Africa's weather and climate are often associated with extreme weather and climate events such as flash floods and severe droughts – all of which have societal impacts and should be predictable. The most well-known natural phenomenon linked with South African summer rainfall and temperature variations is the El Niño – Southern Oscillation (ENSO). This phenomenon involves prolonged warming (El Niño) or cooling (La Niña) of the east-central Pacific Ocean sea surface temperatures, and affects weather and climate patterns globally, On the other hand, the summer rainfall total may also be unusually low during El Niño years, yet isolated flooding events may still occur. South Africa occasionally experiences drought or flood seasons when neither an El Niño nor a La Niña event occurs (Mambo and Faccar, 2017).

South Africa has recorded 94 adverse weather related disasters with an estimated number of 3869 affected people between the periods of 1980-2019. There has been a significant increase in the impact of disasters resulting in loss of property, leaving displaced families, damages to infrastructure, loss of lives and injuries disrupting the livelihoods of more than 18 million people in the country. These disasters include floods, drought, fires and storm related disaster incidents. The NDMC reported that an estimated cost of disaster relief grants amounted to R544 million. The total estimated disaster losses experienced was R 12, 4 billion (NDMC, 2018).

South Africa, like the rest of the globe, is prone to natural and anthropogenic (human induced) hazards of different origins, forms and magnitude such as floods, severe storms, drought, veld and structural fires when they occur. These hazards, combined with various socio-economic, infrastructural and other vulnerabilities, expose the majority of the population to high risk, especially the most vulnerable segments of the society such as woman, children, elderly and people with disabilities.

South Africa Weather Services, numerous studies, sources of literature and records acknowledge that South Africa is highly prone to flooding. Five weather systems are recognized to be natural causes of these phenomena in South Africa (Humby, 2012; Alexander, 2015, Mambo & Faccar, 2017):

1. Tropical cyclones: common towards the east coast of KwaZulu-Natal and SA;
2. Cut-off low and ridging high pressure systems: occur along the cape coast;
3. Large scale and near stationary wave patterns found across from the Eastern Cape, through the south part of Free State;
4. Intense cyclone mid latitude pressure systems develop along the Southern Cape in the form of cold front; and
5. Squall lines, mesoscale convective systems are thunderstorms which affect the eastern part of the country.

The reality of climate change is being experienced. Based on secondary literature, impacts of disasters are mostly triggered by natural hazards, which is extreme weather and climate change events. This has overstretched humanitarian response systems and resources for effective implementation of post-disaster housing interventions and also affects the pace of sustainable development.

### **2.13.1 Disasters in KwaZulu-Natal Province**

The Province of KwaZulu-Natal is also experiencing extreme weather events such as floods, drought and storm which result in devastations and severe damages to property, infrastructure, agricultural produce, cause fatalities and injuries. In 2019 alone, more than 6000 families were affected, wherein 4799 houses were totally destroyed. These incidents affected more than 20 000 people and claimed 22 lives. The damages of infrastructure relating to housing, roads, bridges, schools, public facilities were estimated to R196 740 200.00 (KZN-PDMC, 2020).

KwaZulu-Natal has been historically vulnerable to floods, especially during the summer season. Two major flooding disasters were recorded in 1987 and 1995 in KwaZulu-Natal. In 1987, KwaZulu-Natal floods claimed the highest death toll in the history of South Africa. The disaster claimed 388 lives and left 50 000 people homeless with more than 14 bridges washed away. This resulted in astronomical high financial losses of R3, 3 million of damages. In 1995, Christmas day, the Province received over 1000mm rainfall over a few days which led to flooding in Pietermaritzburg where informal settlements built near Edendale Hospital were flooded. The incident caused extensive damages to informal structures built near the river bank of Msunduzi River (Anon, 1998).

## **2.14 FRAMEWORK FOR POST-DISASTER HOUSING RECONSTRUCTION**

This section gives an overview of the case study literature on good practices and failures of post-disaster housing rehabilitation and reconstruction. Furthermore, it unpacks recommended strategic frameworks for post-disaster housing. It further encapsulates the premise for the researcher to propose a guiding framework of post-disaster housing rehabilitation and reconstruction.

### **2.14.1 The Case Study Literature: Good practices on housing reconstruction programme from global community**

This section discusses lessons learnt, experiences, good practices and failures of post-disaster housing reconstruction using the case studies of different countries. It outlines strategic frameworks for post-disaster housing proposed by international scholars.

#### **2.14.1.1 Lessons Learnt and Experiences: The Case Study of Hurricane Katrina**

The Post Hurricane Katrina in the USA in 2005 left affected communities displaced and without a place they used to call home. The scale of the incident resulted in challenges ranging from coordination of resources, logistics, political and community pressure to quickly receive humanitarian response. In the USA, when disasters strike, local government is the primary responder to conduct damage assessment of homes, building and damaged infrastructure. It is responsible for provision of alternative shelter including motels, schools, rented properties within the area of jurisdiction (Patel & Hastak, 2013). Local government directed by the nature of a disaster, declare the disaster to acquire further assistance from state government and federal government and its agencies. Local government takes most of responsibilities including, restoration of services, repairs and damaged infrastructure. This responsibility includes disaster contingency planning and preparedness for individual households, where families are encouraged to develop emergency plans and to prepare and store survival family kits with day-to-day supplies for people and pets. These supplies may take at least a few days after the disaster incident. The community driven approach for disaster preparedness relieves pressure from government and agencies. American citizens, as individuals, offer their services without expecting any remuneration. They work as volunteers to assist government and agencies (FEMA. 2009). In cases where local government does not cope with the impact, state and federal government are activated for additional resources. There are different agencies and different types of house interventions. The assistance is provided by agencies such as FEMA which provides assistance in a form of financial support for rental, loan assistance, temporal shelter, repair and reconstruction of homes (Patel & Hastak, 2013).

The researcher identified similarities and differences where local government in South Africa is at the forefront in provision of disaster response and recovery; municipalities conduct damage assessment, coordinate and provide disaster relief to the affected communities. This is undertaken with assistance from the District Municipality and Province. However disaster classification and declaration is processed through involvement of all spheres and affected sectors. National Government has a final approval post verification of the magnitude of damages experienced. All Government spheres develop contingency plans and these plans must be financed for



implementation. When Local and Provincial spheres of government have limited resources and funding to provide assistance, National Government is approached for funding assistance. Funding is approved by National Government and funds flow directly to affected sector departments and municipalities. The repairs of damaged infrastructure are done by respective sector departments and municipalities.

The Non-Governmental Organisations also play a crucial role as social partners of government to provide emergency relief to the affected communities. Emergency agencies are coordinated by different spheres of government, depending on the extent of disaster damages. For displaced families, local government provides temporal shelter such as community halls, places of worship and other community facilities. The Department of Human Settlements assist affected communities with housing interventions in a form of temporal housing and permanent housing (KZN-DHS, 2012). It must be stated that some municipalities also provide temporal shelter to ease of pressure from Department of Human Settlements. Non-government Organisations are not that active in the space of housing assistance as compared to other countries. They normally provide humanitarian assistance such as food parcels, soup kitchen, blankets and other relief materials based on the needs of affected communities. In South Africa, community does not play a critical role during preparedness stage for disasters especially individual household preparedness. Communities only participate in ward based disaster risk assessment, integrated public awareness campaigns and damage assessment process and provision of humanitarian aid. In the USA, it is like a tradition that each household must develop an emergency plan, each household must have a survival kit for emergency day-to-day survival which can last for seven days. Therefore, there are good practises that could be learnt from the developed countries like the USA which can contribute towards the conceptualisation of the proposed framework for post-disaster housing rehabilitation and reconstruction.

#### **2.14.1.2 Successes and good practice in post-disaster housing reconstruction: The Case Study of Japan, Gujarat, Nepal and Bam**

Learning from the case studies of Japan, Gujarat and Bam, the coordinating structures were formed at a national level to support and coordinate disaster response and recovery measures. Guidelines for planning and implementation of post-disaster housing were developed. The relocation settlement plans were also developed.

However, affected people decided to return to their homes for in-situ construction. Reconstruction plans were also developed, inclusive of key deliverables and budget for actual implementation. The development of local recovery plans was prioritised and developed within the regulatory framework of the national plan (Ranghieri & Ishiwatari, 2014). Drawing from literature, it is important for governments to develop contingency plans, guidelines and legislative policies and to appoint special task forces to coordinate and support post-disaster housing reconstruction. The community must also be involved in planning for post-disaster housing rehabilitation and reconstruction.

Post Nepal Earthquake disaster in 2015, the government of Nepal enacted a Policy Framework on Housing Reconstruction to respond to devastating disasters which left 423,118 households affected and caused severe damages to infrastructure (NRA, 2016). The main objective of the framework was to standardise housing reconstruction through proper planning, funding, coordination, monitoring and implementation. The framework was developed to prioritise a systematic, structured and uniform approach for post-disaster housing recovery. It promotes disaster resilient social and infrastructure. Disaster resilient housing reconstruction is a key priority whereby home owners are provided with financial support in tranches and they are supported through provision of technical assistance, training and facilitation, so that people can rebuild as soon as possible. This is undertaken through collaborative efforts between government and agencies to ensure quick and smooth process for delivery of housing interventions.

#### **2.14.1.3 Failures in post-disaster housing rehabilitation and reconstruction: The Case Study of Sri Lanka, Aceh and Bam**

Bilau *et al.*, (2015) conducted an investigation on post-disaster housing interventions post 2004 Tsunami in Sri Lanka. The empirical results from the case study revealed that there were challenges or failures experienced in post-disaster housing rehabilitation and reconstruction. The research results indicated that there were no existing policies or guidelines adopted for effective implementation. The demarcation and assignment of responsibilities was unclear and coordination of disaster relief efforts and communication issues arose. Communities were initially not involved during the planning stage of housing recovery.

Response interventions were associated with poor coordination and corruption allegations where a buffer zone was identified along the coast for relocation of community without sufficient involvement of communities; later the buffer zone along the coast was granted to commercial buildings and this raised widespread criticism and suspicion of corruption and eventually a decision was made to reserve policy approval (Bilau *et al.*, 2015). The policy decision and lack of credible data or statistics of the affected communities, delayed reconstruction and caused confusion within the system (Uyangoda, 2005 & Grewal, 2006). The failure was also aggravated by poor planning, insufficient consultations with communities, land tenure issues, lack of skilled human resources, material sourcing and logistics management (ACARP, 2007; Kennedy *et al.*, 2008; Ophiyaandri *et al.*, 2010)

#### **2.14.2 Proposed strategic frameworks for post-disaster housing reconstruction**

Following the case study of Sri Lanka, Bilau *et al.*, (2015) a generic framework for effective implementation of post-disaster housing reconstruction programme was recommended. Learning from failures and successes of the programme, Scholars proposed three general phases of a framework for management of post-disaster housing projects. The phases are described as follows:

- an **enabling strategic phase** is defined as a planning stage before disaster occurrence. It focuses on building institutional capacity and budgetary requirements. This phase entails enabling environment where establishment of structures is undertaken and these structures are fully resourced. Access to funding and development of recovery and rehabilitation strategy is prioritised.
- **Reconstruction planning phase** entails detailed planning for actual implementation during disaster occurrence stage and decisions are made. This stage requires consultation with critical stakeholders where selection of appropriate delivery approach is adopted and land approval issues are resolved in line with existing legislations.
- **Reconstruction implementation phase** is undertaken during disaster occurrence phase where the actual reconstruction works are undertaken. The critical implementation issues for consideration include: coordination, financial management, monitoring and control, logistics management, resource management, health and safety standards and quality assurance.

Patel & Hastak (2013) affirm that institutional framework for housing recovery is very important to plan, execute and restore lives of the affected communities. They also suggested a framework to construct post-disaster housing. The framework would assist government and agencies to improve preparedness plans and develop disaster response strategies with housing response time. The disaster response and recovery plans and strategies will assist with fast tracking recovery of affected individuals and communities. The framework had two basic parts involved: (1) pre-disaster strategy planning and (2) execution of the strategy.

**Pre-disaster Planning:** disaster planning issues are sorted out during this phase to ensure rapid response during execution phase. The issues include: availability and sources of funding, logistics and transportation, coordination, service level agreements, infrastructure and facilities available and supply chain management (Patel & Hastak, 2013).

**Execution of the strategy:** focuses on the implementation of the strategy which entails mobilisation of resources and coordination all key stakeholders. This stage occurs during disaster occurrence, it involves activation of all key stakeholders. This phase entails allocation of responsibilities to agencies and coordination of post-disaster housing reconstruction (Patel & Hastak, 2013).

It is important to indicate that the strategy to manage post-disaster housing promote provision of good quality shelters within a short period of time. This could not be achieved without effective coordination and assignment of responsibilities. Le Masurier, Rotimi & Wilkinson (2006); Shaw & Ahmed (2010); Patel & Hastak, (2013) also affirm that management of reconstruction programmes requires a sound communication plan with clear feedback mechanisms for information dissemination and coordination by organisations.

Baradan (1999) further presents four different periods: pre-disaster period, immediate relief period, rehabilitation period and reconstruction period. The first phase is **the pre-disaster period** deals with planning for disaster response and recovery and provides for government and agencies to develop contingency plans, policies, strategies

(UNDRO, 1982). The second phase is **the immediate relief period** which occurs during disaster occurrence. Damage and needs assessments are conducted, where humanitarian response and temporal shelter is provided to affected communities. The third phase is **the rehabilitation period** which occurs during the occurrence of a disaster. It is when damage and needs assessment are analysed and evaluated. The fourth phase is **the construction phase**: it entails actual repairs and reconstruction of damages as permanent housing solutions (UNDRO, 1982). The aforementioned stages can take more than four years to normalise affected communities (Haas, Robert and Martyn, 1977; UNDRO, 1982; HABITAT, 2001; Barakat, 2003).

#### **2.14.3 Paradigm shift of disaster risk reduction in post-disaster recovery**

Reddy (2010) put more emphasis on the notion of “recovery” from the impact of disaster and indicates that households should not only return to normality physically but there should be resilience for future disasters. The resilience to disasters is synonymous with Build Back Better (BBB) as proposed by the UNSIDR (2015). The recovery should take into cognisance disaster risk reduction to mitigate future disasters and the quality of structures constructed should be the core focus during planning and implementation for post-disaster reconstruction. The framework also identifies post-disaster housing reconstruction as an opportunity to redress, reinforce integrated disaster risk reduction measures through provision of effective response and resilient infrastructure embodied key priority. The government and implementing agents should prioritise the BBB principle during assessment and costing of damages. This would assist in ensuring that such needed integration is done and BBB principle is implemented to reduce disaster risks (UNSIDR, 2015).

According to Duze (2016), the reduction in the number of required social relief in areas of high disaster risk is another logical and systematic method of assessing success or failure of the disaster risk reduction interventions, particularly if a demand change is recorded in social relief assistance. Although emergency humanitarian assistance is an important element of disaster response and must be budgeted for, the disaster management legislation and policies unequivocally provide primacy to a proactive disaster management paradigm, especially in poor households and communities highly vulnerable to disaster risks. Disaster risk reduction programmes can also contribute to risk avoidance culture. Furthermore, he recommends that planning and

application of disaster risk reduction must be in line with the processes of municipal IDP planning and implementation (Duze, 2016). In cases, where municipalities should make budget provision for humanitarian aid and emergency housing interventions, such provisions should be included in the IDP process. In summary, the literature asserts that disaster risk reduction is interdependent of post-disaster recovery. It plays a critical role in mitigating future extreme disaster events through building of resilient structures for disaster recovery.

#### **2.14.4 Gaps in post-disaster housing rehabilitation and reconstruction**

Disaster Management is a new field in South Africa: the Disaster Management Act 57 was promulgated in 2002. The challenges of implementing Disaster Management Act, National and Provincial Policy Frameworks are challenging all spheres of government regarding post-disaster housing rehabilitation and reconstruction. The study of post disaster housing reconstruction has various gaps which require continuous development of knowledge through practise and research: the limited funding for effective implementation of the programme, limited or lack of institutional capacity for key role players to perform this function and poor monitoring and evaluation of post-disaster housing projects, poor communication amongst key role-players, there are no guidelines or guiding framework for effective implementation of programmes. Limited research is indicative of limited evidence on how government has provided disaster response and recovery for affected communities in KwaZulu-Natal.

Based on the literature reviewed, there are few scholars (Baradan, 1999; Le Masurier *et al.*; 2006; Patel & Hastak, 2013; Chang, Wilkinson, Potangaroa and Seville, 2010; Jha *et al.*, 2010; Shaw & Ahmed, 2010; Hidayat, B and Egbu, CO, 2011; Yang and Yi, 2014; Bilau *et al.*, 2015) who have studied this area focusing on various areas such as: critical role played by government and emergency agencies, proposing project management strategies, role of communities, comparative analysis and management of housing recovery, resourcing challenges of post-disaster housing, research trends of post-disaster housing as well as strategic frameworks for post-disaster housing reconstruction. Based on the literature presented by the aforementioned seasoned scholars and many others, it has become evident that secondary literature in South Africa in disaster management is very sketchy and limited in particular in post-disaster

housing reconstruction which resulted in the researcher using international published resources.

#### **2.14.5 Summative analysis of post-disaster housing rehabilitation and reconstruction**

Post-disaster housing rehabilitation and reconstruction is process which requires multi-faceted approach and decisive action from government to expedite housing delivery to affected communities.

The literature further acknowledged that the top-down approach is always adopted during disasters since the nature of devastation is always a matter of limited coping ability for the affected communities which make them more vulnerable to make any decision about their state of affairs. Hence, the researcher has employed Systems Theory to explore how this process has unfolded to normalise the lives of the affected community members of Tholeni area and assess the effectiveness of post-disaster housing rehabilitation and reconstruction. Drawing from the lessons learnt, good practise, failures and proposed strategic framework for post-disaster housing reconstruction, the researcher identified similarities and differences on how post-disaster housing is managed, what strategies have been proposed and what could work better. This study objective proposed a guiding framework for post-disaster housing rehabilitation and reconstruction. It is critically important to propose an integrated framework to guide and enhance post-disaster rehabilitation and reconstruction interventions, which outlines a standardised approach and provide clear guidelines on the roles of critical stakeholders. The researcher considered good practises, lessons learnt from literature, empirical findings and information from government reports as well as other sources in order to propose a theory grounded and practise informed guiding framework, which will contribute towards the development of knowledge within the field of disaster management.

#### **2.15 KEY DISASTER MANAGEMENT LEGISLATIVE AND POLICY FRAMEWORK IN SOUTH AFRICA**

This section gives an overview of disaster management legislations and related legal prescripts. It further discusses the legislative role of the Department of Human Settlements in order to understand modalities for the implementation of post-disaster housing rehabilitation and reconstruction.

### **2.15.1 Constitution of South Africa**

“Part A, Schedule 4 of the Constitution of the Republic of South Africa enlists disaster management among the functional areas of concurrent national and provincial legislative competence”. “In terms of Section 41(1)(b) of the Constitution, all spheres of government are required to secure the well-being of the people of the Republic”. “Section 152(1)(d) also requires that local government to ensure a safe and healthy environment” (Republic of South Africa, 1996).

“Chapter 2 of the Republic of South Africa Constitution Act of 1996 provides for the Bill of Rights which is a cornerstone of democracy in South Africa. It enshrines the rights of all people in this country and affirms the democratic values of human dignity, equality and freedom. These rights are listed but not limited to the following:

- Life – Every person has a right to life;
- Housing – Every person has a right to have access to adequate housing;
- Human Dignity – Every person has inherent dignity and the right to have their dignity respected and protected.
- The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of these rights”.

It is imperative that the access to housing is an international human right, it is essential for recovery of the communities. The Sphere Project (2018) also put emphasises on the right to shelter to protect dignity of affected communities.

### **2.15.2 Disaster Management Act 57 of 2002**

The Disaster Management Act (DMA) as amended is the foundation for all disaster related policies “The Disaster Management Act of 2002 (Act No. 57 of 2002) was promulgated into law on 15<sup>th</sup> of January 2003”. The Disaster Management Amendment Act 16 of 2015 calls for local municipalities to establishment capacity for implementation of disaster management plans. “The Act provides for an integrated and co-ordinated disaster risk management policy that focuses on preventing or reducing the risk of disasters, mitigating the severity of disasters, preparedness, rapid and effective response to disasters, and post-disaster recovery” (Republic of South Africa, 2003). It then follows that “Section 3 of the Act provides that the provincial legislation regulating disaster management in a province is inconsistent with the



Disaster Management Act”, “prevails over the provincial legislation subject to Section 146 of the Constitution” (Republic of South Africa, 2003).

“The Act requires an integrated and co-ordinated policy that focuses on rapid and effective response to disasters and post-disaster recovery and rehabilitation”. “When a significant event or disaster occurs or is threatening to occur”, it is important to have clear roles and responsibilities. This section addresses key requirements for integrated response and recovery (Republic of South Africa, 2005).

All three spheres of government of South Africa have the responsibility, in terms of the Constitution (Republic of South Africa, 1996), to “secure the well-being of the people of Republic”. “Section 152 (1) (d) requires local government to ensure a safe and healthy environment”. “Section 26 (g) of the Municipal Systems Act (Republic of South Africa 2000) calls for integration Disaster Risk Management Plan into the Integrated Development Plan”. The Disaster Risk Management Plan should incorporate KPA 4: of the NDMF requirements on Disaster Response and Recovery. According to the provisions 25, 38 and 52 of the Disaster Management Act 57 of 2002, disaster management plans must be developed at national, provincial and local authority levels to efficiently manage all disasters as part of integrated development planning so as to ensure sustainable development (Republic of South Africa, 2002).

“Section 40 (1) The executive of a province is primarily responsible for the co-ordination and management of provincial disasters that occur in the province, irrespective of whether a provincial state of disaster has been declared in terms of Section 41”. “In the event of a provincial disaster, the Premier of a Province, after consultation with the other MECs, may, by notice in the provincial gazette, declare a provincial state of disaster. Once a provincial state of disaster has been declared, the Premier has authority to make regulations and to issue directives. The directives include but are not limited to the following: (i) the release of available resources of the provincial government including stores, vehicles and facilities, facilitation of response and post- disaster recovery and rehabilitation and issue directive on emergency procurement procedures” (Republic of South Africa, 2002).

“The Constitution of the Republic of South Africa places a legal obligation on the Government of South Africa to ensure the health (personal and environmental) and safety of its citizens. The South African Constitution of 1996 places local government

as the mouth piece of local communities. It is the sphere of government that interacts directly with local communities as a result of its closeness to the people". "In terms of Section 41 (1)(b) of the Constitution, all spheres of government are required to secure the well-being of the people of the Republic". "Section 152 (1) (b) also requires that local government ensure a safe and healthy environment". Section 43 (3) of the DM Amendment Act is putting more emphasis on new implications for local government in particular local municipalities under subsection (2):

- "(3) A local municipality must establish capacity for the development and coordination of a disaster management plan and the implementation of a disaster management function for the municipality;
- (4) A local municipality may establish a disaster management centre in consultation with the relevant district municipality" (Republic of South Africa, 2015).

### **2.15.3 National Policy Framework for Disaster Risk Management**

The National Disaster Management Framework (NDMF) is "a legal instrument specified by the Disaster Management Act to address such needs for consistency across multi interest groups, by providing a coherent, transparent and inclusive policy on disaster management appropriate for the Republic as a whole". "Section 7(1) provides for the national disaster management framework (NDMF) as the main regulations that oversee consistency across all the disaster management stakeholders from local government to provincial to national sphere". In this case, "the National Disaster Management Framework was published for public comments in May of 2004 and adopted in June 2005". The National Disaster Management Framework operates within four Key Performance Areas (KPAs) and supporting Enablers as required by the Act. Each of the KPAs is informed by specific objectives as set out in the Disaster Management Act. The three enablers are aspects which need to be present in all four of the KPAs in order for them to be implemented successfully". "The KPAs and Enablers are:

KPA 1: Integrated institutional Capacity for disaster risk management

KPA 2: Disaster Risk Assessment

KPA 3: Disaster Risk Reduction

KPA 4: Disaster Response and Recovery

Enabler 1: Information Management and Communication

Enabler 2: Education, Training, Public Awareness and Research

Enabler 3: Funding Arrangement for disaster risk management”

The framework must establish prevention and mitigation as the core principles of disaster management. The discussion focuses on each Key Performance Areas and Enablers as they provide guidelines for the implementation of Disaster Management Act.

#### **2.15.4 Legislative role of the Department of Human Settlements**

The constitution makes provision in the Bill of Rights which stipulates that every person has a right to access adequate housing. As contemplated by the National Housing Emergency Policy, “every Provincial Government, through its Member of Executive Council (MEC), must, after consultation with the provincial organisations representing municipalities as contemplated in section 163 (a) of the Constitution, do everything in its power to promote and facilitate the provision of adequate housing in its province within the framework of national housing policy” (Republic of South Africa, 2009). The challenges of implementing Disaster Management Act, National and Provincial Policy Frameworks are confronting all spheres of government regarding disaster housing rehabilitation and reconstruction including the Department of Human Settlements. “Section 38 (1) of the Act empowers each provincial organ of state indicated in the national or provincial disaster management framework to prepare a disaster management plan, in order to coordinate and execute disaster management in a uniform and coordinated approach” (Republic of South Africa, 2003). The disaster management plan clearly outlines how the Department respond to disaster related incidents in order to restore normality to the affected communities. This plan should serve as guiding strategic document for the Department of Human Settlements to implement integrated response and recovery as well as monitoring of post- disaster recovery projects. Furthermore, the Act requires organs of state to develop and build its capacity in order to fulfil its role and responsibilities.

##### **2.15.4.1 National Emergency Housing Policy of 2009**

In line with National Emergency Housing Policy of 2009, “an emergency exists when the MEC, on application by a municipality and or the Provincial Department, agrees that persons affected owing to situations beyond their control:

- a) Have become homeless as a result of a declared state of disaster, where assistance is required, including cases where initial remedial measures have been taken in terms of the Disaster Management Act, 2002 (Act No. 57 of 2002) by government, to alleviate the immediate crisis situation;
- b) Have become homeless as a result of a situation which is not declared as a disaster, but destitution is caused by extraordinary occurrences such as floods, strong winds, severe rainstorms and/or hail, snow, devastating fires, earthquakes and/or sinkholes or large disastrous industrial incidents;
- c) Live in dangerous conditions such as on land being prone to dangerous flooding, or land which is dolomitic, undermined at shallow depth, or prone to sinkholes and who require emergency assistance” (Republic of South Africa, 2009).

#### **2.15.4.2 National Housing Act (No 107 of 1997)**

“Section 2 of the Housing Act of 1997 compels all three spheres of government to give priority to the needs of the poor in respect of housing development”. “Section 2(1) every Provincial Government, through its MEC, must, after consultation with the provincial organisations representing municipalities as contemplated in Section 163 (a) of the Constitution, do everything in its power to promote and facilitate the provision of adequate housing in its province within the framework of national housing policy”.

“Section 9 states every municipality must, as part of the municipality's process of integrated development planning, take all reasonable and necessary steps within the framework of national and provincial housing legislation and policy to- (a) ensure that: (i) the inhabitants of its area of jurisdiction have access to adequate housing on a progressive basis; and (ii) conditions not conducive to the health and safety of the inhabitants of its area of jurisdiction are prevented or removed” (Republic of South Africa, 1997).

## **2.16 SUMMARY OF LEGISLATION AND POLICIES**

The key legislative documents that provided guidelines on post-disaster rehabilitation and reconstruction in disaster management were analysed. The reviews and analysis show the constraints placed on post-disaster recovery. South African Disaster Management Act is one of land mark and comprehensive piece of legislation however implementation challenges hinders the actual application of Act. Disaster Management fraternity cannot be excluded from this policy implementation phenomenon. In closing, the legislation could contribute or can be a weakest point in the implementation of post-disaster housing reconstruction. The constitution of South Africa, Disaster Management legislations and the housing legislation bind government in ensuring that all South Africans have access to adequate housing.

## **2.17 CONCLUSION**

This chapter discussed systems theory as a theoretical framework that guides the study. In terms of systems theory, it became critical to note that the institution is interconnected and interrelated to the subsystems. The chapter explained critical concepts and theories of disaster management such as disaster management cycle, Disaster Management in a South African context, funding mechanisms for disaster response and recovery, post-disaster housing reconstruction as a concept, challenges of post-disaster housing reconstruction, role of communities in post-disaster housing reconstruction and post-disaster housing patterns. The global impact of disasters and global experiences on post-disaster housing reconstruction were also discussed in order to analyse previous studies undertaken. The chapter discussed good practices, lessons learnt, failures of post-disaster housing reconstruction, proposed strategic frameworks for post-disaster housing, paradigm shifts of disaster risk reduction in post-disaster recovery, gaps in post-disaster housing reconstruction. This chapter concluded by drawing specific references from key disaster management legislative and policy imperative in South Africa.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter outlines the research methodology employed in the study. It further discusses philosophical worldview, research design, research methods, research instruments, study population and sampling procedure. It also addresses reliability and validity of the research instruments and study population. Ethical considerations pertaining to the research are also discussed. The researcher conducted literature reviews and consulted journals, academic papers, theses and dissertations, government reports, policies, books and case studies in order to ensure greater insight of the research problem being studied. The study used different types of research instruments for different participants in order to ensure validity of the study through triangulation of results.

#### **3.2 RESEARCH PHILOSOPHICAL WORLDVIEWS**

The philosophical worldview focuses on one system of philosophy. The philosophical worldview is a general orientation about the research world and how the researcher selected research design based on the views the researcher holds. Hothersall (2019) further describes pragmatism worldview as based on the notion that mixed methods want to explore a concept from more than one worldview. Morgan (2007:64) states that the pragmatism worldview allows researchers to use a research method that works best for the specific research problem that is being assessed. This research paradigm uses mixed method of both qualitative and quantitative methods. This approach allows different assumptions and it also uses different types of data collection and analysis. Table 3.1 below discusses four philosophical worldviews namely: positivism/postpositivism, constructivism, advocacy/participatory and pragmatism.

**Table 3.1 Description of Philosophical Worldviews, Research Design and Methods**

<b>Worldview</b>	<b>Method</b>	<b>Description</b>
<b>Positivism &amp; Postpositivism</b>	Quantitative	"It focuses on enquiry using experimental strategy, and pre- and post-test measures of attitudes. Uses surveys and experiment. It uses closed questions, pre-determined approaches and numerical data. Test and verifies theories or explanations" (Creswell, 2009:49).
<b>Constructivism</b>	Qualitative	"This worldview uses behaviour observation and ethnographic design. The researcher seeks to establish the meaning of a phenomenon from the views of participants. The researcher used this approach to observe participants' behaviours by engaging in their activities" (Creswell, 2009:49).
<b>Advocacy/ participatory</b>	Qualitative	"It uses narrative design, and open-ended interviewing. The inquirer seeks to examine an issue related to oppression or isolation of individuals. Using a narrative approach. Individuals are interviewed at some length to determine how they have personally experienced oppression" (Creswell, 2009:49).
<b>Pragmatism</b>	Mixed method (Qualitative and Quantitative)	"This approach focused on collection of both quantitative and qualitative data sequentially. The researcher bases the inquiry on the assumption that collecting diverse types of data best provides an understanding of a research problem" (Creswell, 2009:50).

### 3.2.1 Pragmatism Philosophical Worldview

In this study, the researcher used pragmatism philosophical worldview as it is the suitable approach that works best for the research problem being investigated. The study focused on examining post-disaster housing reconstruction with special focus on Disaster Management Practitioners, officials from Department of Human Settlements and affected communities who were given an opportunity to make their voices heard on their perceptions, experiences and recommendations for effective implementation of post-disaster housing reconstruction. As described by Morgan (2007) pragmatism approach believe that people with identical characteristics could not have identical views and experiences. He further explains that the researcher makes a decision about which question is important and what research method is appropriate. These choices are influenced by the social stand point of the researcher (Morgan 2007:65). The approach offers the researcher different research methods, different data collection techniques and analysis (Creswell, 2020:69). The researcher draws conclusions in this philosophical worldview. Researchers are free to choice methods,

techniques, and procedures of research that best meet their needs and expected outcomes. The researcher used pragmatism worldview to explore opinions, perceptions and experiences of affected communities as well as disaster management practitioners and officials from Department of Human Settlements throughout the study. The researcher also used some variables of quantitative method to supplement and triangulate qualitative findings and for statistical data analysis purposes; hence data collection instruments included both qualitative and quantitative approaches.

### **3.3 RESEARCH DESIGN**

Chivanga (2018) and Thomas (2010) define research design as the master plan or logic of research that showed the light of how the study should be conducted. It indicates how the major parts of the research study work together in an attempt to address the research questions. He further defines research design as a road map or action plan showing how research will be conducted starting from initial stage of developing research instruments to last stage of research findings and conclusion.

This study used qualitative and quantitative approaches to study Disaster Management Practitioners and Human Settlements Officials who have vast experience and work directly with post-disaster housing reconstruction programme as well with on communities who were affected by disasters. In this study, self-administered questionnaires were circulated to Disaster Management Practitioners of a sample size of 28 respondents, from which 26 respondents completed the questionnaires, thereby generating a response rate of 96%. Semi-structured interviews were conducted with officials of the Department of Human Settlements of a population size of 8 from which all 8 respondents were interviewed, generating a response rate of 100%. Lastly, interviewer-administered interview guides were conducted with disaster affected community of population sample of 331 from which 311 respondents completed the questionnaire, generating a response rate of 84%.



### **3.4 RESEARCH METHODOLOGY**

Sekaran (2006) and Creswell (2020) define research methodology as a systematic process explains how the research problem should be investigated with the aim of finding answers to the problem statement. Qualitative research attempts to study everyday life of different groups of communities in their social setting. It attempts to make a meaningful sense of phenomena (Thomas 2010:302). Qualitative methods are used largely in this study as much as it also contains small quantitative components. The researcher used mixed method approach in order to gain an in-depth understanding of the results using different data collection techniques from different population sample. This approach allowed the researcher to test validity of results gathered through triangulation. With the help of the qualitative method, the research data is then analysed inductively. The researcher used some elements of quantitative method to supplement and triangulate qualitative findings and for statistical data analysis purposes; hence data collection instruments included both qualitative and quantitative approaches. The data was captured numerically in table format according to thematic areas and this allowed the researcher to interpret and analyse statistics in line with research question and study objectives.

#### **3.4.1 Selection of the Study**

The focus area of the study was the Tholeni area wherein affected communities were severely affected and are regarded as vulnerable people to disaster incidents. The affected communities were selected as participants because they have first-hand experience of disasters and government response measures. They are in a better position to speak the truth and make their voices heard from what they have gone through. The study would have not be complete without getting views of experienced officials who are experts in the field hence officials from KZN Department of Human Settlements, KZN Disaster Management Practitioners were selected to participate in the study.

#### **3.4.2 Participants in the Study**

The participants in the study included affected community of Tholeni, disaster management officials and officials from Department of Human Settlements. Disaster Management Practitioners included Heads of the Centre, Managers responsible for relevant department and Disaster Management Officers, Officials from Department of

Human Settlements included Chief Directors, Directors, Deputy & Assistant Directors and Senior Project Officers. The identified government officials and affected community of Tholeni had critical roles and responsibilities in disaster management in the particular issues of post-disaster housing reconstruction. The population group was selected because of their vast knowledge of legislative prescripts, expertise, experience and understanding of challenges in dealing with post-disaster housing rehabilitation and reconstruction. Communities had first-hand excruciating experience of disasters and provision of recovery measures. In turn, the study would have only been partially complete were it not for getting community views on post-disaster rehabilitation and housing reconstruction.

### **3.4.3 Data Collection Techniques**

Data collection is an important segment of any research study. As the research study used mixed method, the researcher adopted the same approach when the design of data collection tools was concluded. Neuman (2000:124-125) also stresses that researchers are allowed to use multi-methods to measure the same phenomenon in to enrich validity of the research results. He further expand on by stating that measuring the same phenomenon using more than one instrument, the researcher is likely to gain a broader understanding of the phenomenon. The study used of interviews and questionnaire to collect data and the process is discussed below.

#### **3.4.3.1 Researcher administered questionnaire**

The researcher used and administered structured interview guides to collect data from affected communities in Tholeni area because the research was targeting affected communities. The researcher decided to use face-to-face interviews with affected communities because it has a higher response rate and the interviewer can clarify questions for responders. The researcher adopted a mixed approach in terms of the pre-determined questions and sequence. This method is commonly used with large sample populations in order to maintain uniformity and consistency.

According to Wyse (2011) interviews remain a popular and efficient data collection method; this is especially important in South Africa, a country with low levels of literacy. Rather than having the respondents read and answer questionnaires, the researcher asked participants oral questions and recorded answers. For this process to be successful, it is critical and important for the researcher to speak the home

language of the respondents. Using an interviewer or research assistant from the area can be helpful but the research assistant should be well trained to conduct an interview. The training should primarily focus on dos and don'ts of face-to-face interviews or the failure to conduct such training might jeopardise the entire exercise and compromise research results (Creswell, 2020 and Wyse, 2011).

The researcher contacted the ward councillor to set an appointment. A brief overview and objectives of the study were explained to the Councillor and he welcomed the study. The ethical issues of the study were clearly explained. The researcher was able to secure an appointment with Ward Councillor of Ward 34 to study objectives and discuss data collection. On the day of appointment, 12 May 2020, it was unfortunate to learn that the Ward Councillor had been hospitalised due to illness. However he welcomed the researcher and referred him to the senior ward committee members. The three specific senior ward committee members were identified because they know the area and they were also familiar with families who were affected by 2011 disaster incidents. The objective of the study was also explained, ethical clearance issues were also explained as well as the data collection plan.

On the following day, the researcher conducted training with ward committees as research assistants on structured interview guides and the training was on dos and don'ts of face-to face interview. Research assistants were trained in a standard way, not to engage in conversation with participants, so as not to influence their answers. Each question and its objectives were explained. On the job training approach was done as suggested by Creswell, (2020) and Wyse (2011), where the researcher conducted interviews accompanied by research assistants, so they can understand what was practically expected from them. They were quick to learn and worked independently without close supervision. The interviewer and research assistants conducted interviews with affected communities in a simple and cordially manner which was aimed to obtain information relevant to the study. Fifteen minutes were allocated to each household. The main languages used during data collecting were English and IsiZulu. The majority of respondents were illiterate, could not read or write so the researcher decided to use this method. For illiterate respondents an information letter was read to the participants to explain ethical issues which include the fact that participation was voluntary and researcher maintained confidentiality. Participants

agreed verbally to participate in the study. For those who were able to write, information letter was explained and a consent form was signed by participants. The interviewers were able to translate questions where necessary to IsiZulu for affected communities who were non-English speakers. Creswell (2007:147) states that the researcher should gain access and establish rapport with participants so they can have confidence in the process and provide relevant information.

The researcher and research assistants were able to build that rapport with participants in order to gain trust and access to their homes. This prevented subjects giving interviewers answers they thought they wanted. The basic approach was to ask questions in the structured interview guide, clarify or translate where necessary and record responses. This approach helped to separate personal, emotional views of interviewers and avoid leading questions in order to protect integrity and validity of data collected. Challenges were experienced in some areas where interviewers could not find adults in their households and in some cases; there was no one at home. The average of 5 – 10 households were done and completed by each interviewer within five hours per day. The data collection deadline was six weeks in line with data collection plan. Some of the households were clustered and it was easy and quick to do an interview. However, it should be noted that there were delays. The research project could not be completed on time due to travelling distance between households in some areas, large population size and delays caused by the outbreak of COVID 19 pandemic, where lockdown regulations and restrictions affected interview schedules and the entire data collection process. The completion of data collection took (more than four months) which was longer than expected. The transcription and written notes from the interviews were then analysed systematically through repeated re-reading of the obtained information. The structured interview guide had 21 questions which were divided into four sections, namely: biographical data, disaster management policies and legal frameworks implemented during post-disaster housing reconstruction, impact of disaster funding on the living conditions of the affected community during post-disaster phase, government response and recovery measures for disaster affected communities and challenges of post-disaster housing rehabilitation and reconstruction.

### **3.4.3.2 Interviews**

The researcher used interviews to collect data from officials from the Department of Human Settlements. Leedy and Ormrod (2001:196) affirm that interviews play a crucial role to build rapport and gain cooperation from participants. Authors further explain that this method allow the researcher to further clarify ambiguous answers. The interview guide in a form of questionnaire was designed and tested for validity. The questions were asked in an exact order or sequence of how questions were written on the questionnaire which was used as an interview guide. The interview process between the researcher and participants provided an in-depth understanding of the research problem and of the broader perspective useful for data analysis.

The study population was officials from the Department of Human Settlements and the sampling population consisted of 8 respondents and 8 interviews were conducted successfully giving a response rate of 100%. Interviews were conducted with officials from the Department of Human Settlements. The structured interview guide was used to collect data from officials. The structured interview guide comprised of open-ended and close-ended questions. Closed ended questions were “Yes” or “No” type of questions whilst open-ended questions enabled respondents to freely narrate or explain their ideas, opinions, experiences, beliefs in their own words. The researcher provided an information letter (Appendix A) that explained the purpose of the study and an ethical clearance letter (Appendix C). Participants signed the consent form (Appendix B) as well to confirm that they agreed to participate in the study. Due to COVID 19 pandemic, it was difficult to conduct face-to face interviews with all participants. Some officials were working remotely due to 50% restrictions to minimise contacts in the workplace. The researcher decided to use virtual interviews as contingency strategy to reach all participants. Therefore 60% of interviews were done face-to-face and 40% were conducted virtually through Microsoft Teams, while observing COVID 19 health and safety protocols. The researcher had organised appointments with participants for interviews taken between 15 – 20 minutes per each session. It must be indicated that there were challenges with securing appointments due to the busy schedule of participants. Interview questions were sent through email to the participants to ensure that they familiarise themselves with questions before the actual interview. For virtual interviews, connection links for virtual interviews were also sent through the day, before the actual interview. There were minor technical glitches

with connections but interviews were successfully conducted. During the interviews, the researcher took notes and recording conversations to ensure that all critical information was captured. The interviews were planned to be concluded within two weeks but there were delays. The processes ended up taking more than four weeks to be finalised.

### **3.4.3.3 Self-administered questionnaires**

In this study, the researcher used self-administered questionnaire for data collection from disaster management practitioners. De Vos, Strydom, Fouche and Delport (2012:188) emphasised that questionnaire allows participants to answer questions in their own time. However, the researcher was available to give clarity when problems arose. The advantages of self-administered questionnaires is that it is mostly used for large number of participants and are cost effective when compared with other data collection techniques. The disadvantage of self-administered questionnaire is that it has a low rate of response which can be lower than 20% as the researcher does not have control over response rate.

The questionnaire was designed in a simple format which is easy to understand, complete and administer. The self-administered questionnaire was circulated to Disaster Management Practitioners comprising of Head of Centres, Disaster Managers and Disaster Management Officers. They were given two weeks to complete and return questionnaires to the researcher. The sampling population was 28 respondents and 26 respondents returned questionnaires, giving a response rate of 96%. The questionnaires were emailed to participants giving them two options, to fill it in by hand or electronically, some participants preferred filling the questionnaires electronically. The researcher provided (Appendix A): an information letter and (Appendix C): ethical clearance letter as an attachment to the email which was detail in terms of explaining expectations and the purpose of the study. Participants also signed a consent form (Appendix B) as well to confirm that they agreed to participate in the study.

### **3.4.4 Open-ended Questions**

De Vos *et al.*, (2012:196) states that open-ended questions are mostly used by the researchers to get more information from participants, also to get a sense of what is important to them and to get answers from different angles in order to understand

research phenomenon. The open-ended questions were used to allow senior government officials from Disaster Management Practitioners and Department of Human Settlements to describe and narrative their thoughts, views, opinions and perspectives regarding post-disaster housing rehabilitation and reconstruction. Qualitative responses from all respondents were critically analysed in a thematic format.

### **3.4.5 Closed-ended Questions**

In this study, closed-ended questions were used to analyse and interpret numerical data collected. According to White (2003:93) both open and closed questions should be used in a questionnaire but closed questions should dominate. De Vos *et al.*, (212:198) further state that the researcher used this type of question when a relevant response is determined in advance. The researcher can limit the number of responses in line with the study objectives.

### **3.5 TARGET POPULATION**

A study population involves the group of individuals or group who share common characteristics and the researcher may have access to the participants that represents the nature of the population interest (Casteel and Bridier, 2021). It is further important to operationalize the characteristics of the interest based on study variables and qualitative experience so the results can be inferred back to the population of interest (Ackermans et al., 2019). The total number of population size was 2494 consisting of: 8 officials from KZN Department of Human Settlements; 30 Disaster Management Practitioners and 2456 affected communities.

### **3.6 SAMPLING POPULATION**

Sampling is defined as smaller number of subset population that the researcher selects from the entire population using predetermined selection method. Sampling means select some not all, in research. It is practically impossible to study entire population since it is not cheap, requires additional human resources and might take longer to study the entire population (Creswell, 2015 and Casteel & Bridier, 2021). The general rule when it comes to sampling is to always use the largest sample possible. De Vos *et al* (2012: 224) explained that a large sample allows the researcher to have more representative, controllable size which will produce more reliable results. Babbie

(2010:193) states that selection of a sample is important and it must be done on the basis of knowledge of a population. Creswell (2009: 217) also stresses the importance of experience when selecting participants. Participants from government: Disaster Management Practitioners and Officials from the Department of Human Settlements and Tholeni affected communities were selected through a purposive sampling method because of their experience and knowledge of the phenomenon. The researcher used purposive sampling because the method helped to select respondents who can answer research questions. The researcher used his discretion during the selection of interviewees, in order to obtain quality information and truthful responses. The researcher used emails, tele-communication, to recruit disaster management practitioners, and officials from Department of Human Settlements to participate in the study. These communities have first-hand experience of all phases of a disaster incident. The researcher worked closely with the local councillor and ward committees to assist with identification of participants at a community level. The research followed the sampling approach suggested by Sekaran (2006) & Sekaran and Bougie (2020). Below table 3.2 showed the breakdown of study participants and the method of data collection.

**Table 3.2: Summary of study participants and method of data collection**

<b>Population Target</b>	<b>Population Size</b>	<b>Sample</b>	<b>Enrolled</b>	<b>Method</b>
Officials of Human Settlements	8	8	8	<b>Structured Interviews</b>
Disaster Management Practitioners	30	28	26	<b>Self-administered Questionnaires</b>
Affected communities	2456	331	311	<b>Structured Interviews</b>
<b>Total</b>	<b>2494</b>	<b>367</b>	<b>345</b>	

### **3.7 DATA RECORDING AND ANALYSIS**

Data collection and data analysis are inter-related and inter-connected processes that help the researcher to locate research responses into appropriate thematic areas. According to Creswell (2020), the data analysis assists the researcher to organise data collected according to thematic areas and also assists the researcher to gain a meaningful understanding of data collected. The interviewers captured views and opinions of all participants according to thematic areas in order to ensure accurate analysis. Data was collected through structured questionnaires which called an



interview guide where affected communities, as first population, answered the same set of questions independently. The researcher used interviewer administered questionnaire for affected communities (Appendix D1). Disaster management officials completed self-administered questionnaire (Appendix D2). The researcher conducted interviews using a set of structured questions in a form of interview guide (Appendix D3) for officials from Department of Human Settlements. The officials were secondary population, answered the same set of question independently. For qualitative data collection, descriptive and narrative analysis were done in line with thematic areas of the study, whilst in quantitative data, the researcher used Microsoft excel to analyse quantitative data, putting meaningful sense to numerical data. This was done through graphs to demonstrate statistical representation by trends and correlation between two or more items.

### **3.7.1 Thematic coding**

“Thematic coding is a form of qualitative analysis which involves recording or identifying passages of text or images that are linked by a common theme or idea allowing you to index the text into categories and therefore establish a basis of thematic concepts around it” (Gibbs, 2007). The research also employed thematic coding for analysing the data. Data was coded according to sections and number of questions. All related information from all respondents was captured under relevant Sections. Questionnaires were subdivided into Section A, B, C, D, E & F for easy of recording of related questions and responses. Questions were represented by numbers. Example (Section A: A1, A2, A3, A4 and A5) and each section had all questions coded in order to ensure that information is correctly captured under appropriate thematic areas. The researcher used thematic data analysis broken into the following sections: Section A: biographical information; Section B: disaster management policies and legal frameworks implemented during post-disaster housing reconstruction; Section C: the impact of funding on the living conditions of the affected communities during post-disaster phase; Section D: the government response and recovery measures for disaster affected communities; Section E: challenges of post-disaster housing reconstruction; and Section F: proposed a guiding framework for post-disaster housing rehabilitation and reconstruction. Data collected was captured in thematic areas to enables proper sorting and quick retrieval of information so that data can be analysed and compared.

The qualitative questions were more probing and were also structured in such a way that respondents were able to express their views, perspectives and opinions about the subject matter. For quantitative data collection, close-ended questions were used, the numerical analysis from quantitative questions were collected. The likert scale was used to enable statements of opinion to be directly translated into numerical data and this was done to assess how participants agree/disagree with research statements on a 5-point scale. During data collection, the questions were clarified first and then refined during the process of gathering data that is required for the study.

In summary, quantitative analysis was used to affirm and support descriptive or narrative responses from qualitative responses. It should also be indicated that pragmatism philosophical worldview was adopted and used in this approach as the researcher was able to use mixed method to analyse data. The qualitative data was used mainly to test validity of qualitative findings and to ensure that study results are reliable. For qualitative data, the researcher used descriptive or narrative analysis whilst in quantitative data, the researcher used Microsoft excel to analyse quantitative data, putting meaningful sense to numerical data, this was done through graphs to demonstrate statistical representation by trends and correlation between two or more items.

### **3.8 RESPONSE VALIDATION**

Validity according to De Vos *et al.*, (2012:172) “refers to truthfulness, accuracy, authenticity, genuineness and soundness as synonyms for validity, and stresses the fact that these terms describe what validity is about: that the test or instrument you are using actually measures what you need to have measured.” Validity is an assessment of how consistently research instruments produce study results and address the research question (Sekaran and Bougie, 2013:52). Validity in research is important to test and validate results because failure to conduct this exercise can results in the research report being poorly studied and construed. This could result in the study failing to achieve its objectives. The research findings were validated to ensure that research objectives are achieved. The research results were crosschecked to ensure validity and triangulation.

### **3.9 LIMITATIONS OF THE STUDY**

The study was limited to Tholeni area within uThukela District Municipality under Alfred Duma Local Municipality. The cost and time to conduct research was also considered when choosing the study area. The focus area was severely affected by a flooding disaster incident which occurred in 2011, which makes it highly appropriate to investigate how recovery measures were provided to the affected community of Tholeni. The study could not be generic, could not focus on other municipalities, departments or pressure groups which had nothing to do with disaster management.

### **3.10 PILOTING OF THE STUDY**

A pilot study is defined as a trial study using small sample to test all aspects of research design of the main study and also allow necessary adjustments before final roll-out of the main study. (Eldridge, Lancaster, Campbell, Thabane, Hopewell, Coleman & Bond, 2016). The pilot study was used to minimise risks for a study to fail in achieving its intended objectives. It also allows the content and procedures to be reviewed before commencement of the main study. It can also uncover local politics or problems that may affect the research process. The interview questionnaires were piloted to ensure that all items are clear and understandable. The study was piloted to three different respondents of 15 Disaster Management Practitioners, 2 officials from Human Settlements and 20 affected communities were selected. After the questionnaires were completed without assistance, the employees were asked to give their opinion with regards to the questionnaire. Special attention was paid to the critique and suggestions given by the respondents for amendments and revision of questions asked.

### **3.11 ETHICAL ISSUES**

“Ethics is a set of moral principles which is suggested by an individual or group, is subsequently widely accepted and which offers rules and behavioural expectations about the most correct conduct towards experimental subjects and respondents, employers, sponsors, other researchers, assistants and students” (De Vos, 2012:114). The researcher considered all ethical issues during course of the study. The researcher asked and received permission from key stakeholders. During pre-planning for commencement of the study, the researcher sought permission from key

informants and made formal request to relevant population. The Durban University of Technology, Ethical approval was obtained from Ethics Committee, Research Ethics Clearance Number No: 48/17FREC. Ethics approval letter is Appendix C.

### **3.11.1 Voluntary Participation**

Participants were informed of voluntary participation and were allowed to withdraw at any time if they felt uncomfortable and it was explained that the information will only be used for the purpose of the research.

### **3.11.2 Informed Consent**

Informed consent requires potential participants to be adequately informed of the nature of research studies before they agree to participate in them (Thackray, 2018). Ethics in research is the belief that social scientists hold about what is right and wrong for the researchers to do while conducting research (Sekaran, 2006), including the principle of informed consent and confidentiality. The researcher presented information letters to all participants investigated which clearly provided detail information about the study. Information letter is Appendix A. The study objectives were clearly outlined and explained during this process. The researcher requested and was granted permission to conduct the study. Gate keepers letters are Appendix H1: Department of Human Settlements and Appendix H2: UThukela District Municipality. The researcher asked permission from all participants. Letter seeking permission is Appendix G. Participants read and signed consent form to show that they agree to participate in the study. Consent Form is Appendix B.

### **3.11.3 Anonymity and confidentiality**

The researcher ensured that the rights of participants are protected through maintaining confidentiality. Participants were assured that all information for the study would be kept in confidence. The identity and personal information of participants would not be revealed during the course of the study and study results are published. Participants remained anonymous to ensure confidentiality. The data collected was stored in a safe place and would be disposed after 5 years as required by ethical code.

### **3.12 CONCLUSION**

This chapter presented the research design, philosophical worldview, research methods, study population, sampling, data collecting techniques, validity and reliability, limitation and delimitations of the study, data analysis and interpretation, ethical considerations and chapter outline. The chapter presented the process and procedure of how the study was conducted to answer the research question and study objectives. The next chapter presents the literature reviewed in legislative context for disaster risk management, with special focus on post-disaster recovery and rehabilitation.

The study used pragmatism philosophical worldview, the research methodology used was a mixed research approach to solicit views, experiences, and perspectives of affected communities, Disaster Management Practitioners and officials from Department of Human Settlements where data was obtained through questionnaires and interviews. In order to achieve this, purposive sampling method was used as it helped to purposely select disaster management practitioners and officials from human settlements who can provide sufficient data for the purposes of completing the study. Descriptive statistical and content analysis was conducted from analysis of emergent data. The qualitative results were triangulated to further test validity of empirical results. Data collected was computed by means of excel spread sheet.

## **CHAPTER 4**

### **DATA ANALYSIS AND INTERPRETATION OF RESULTS**

#### **4.1 INTRODUCTION**

This chapter presents the research findings and engages in a thorough data analysis and interpretation of results on emerging themes of the study, aligned with philosophical worldview, the literature that guided the study, research objectives and research questions. The results presented in this chapter are based on the questionnaires completed by disaster management practitioners and semi-structured interview guide administered by the researcher for the affected communities Tholeni area and interviews conducted with officials from KZN Department of Human Settlements. The chapter starts with the presentation of evidence from data or results from the questionnaires, followed by analysis of the interview and concludes by interpretation of the results.

The researcher used content, thematic and matrix analyses. The responses given by respondents to the questions listed in the questionnaire were presented, collated, analysed and interpreted. The structured interview guide was developed for affected communities and officials from the Department of Human Settlement. The self-administered questionnaires were developed for disaster management practitioners comprising of Head of Centres, Disaster Managers and Disaster Management Officers. For affected communities, a total number of 331 structured interview guide questionnaires were administered by the interviewer, giving a total response rate of 80%. The officials from KZN Department of Human Settlements were approached and from a total of 8 respondents were interviewed; there was a response rate of 100%. A total of 28 self-administered questionnaires were sent to the Municipal Disaster Management Practitioners. Of this, 26 were returned, giving a total response rate of 96%.

##### **4.1.1 Literature and Philosophical Worldview: Linkage to the Study**

It is important to identify linkages between literature and the philosophical worldview because they both help with answering of research questions and have great influences on the practices of research and how study objectives are achieved. In Chapter 3, the Research Methodology explained the pragmatism philosophical

worldview used for the study. The study adopted the System Approach Theory that drives the study as indicated in Chapter 2. Systems theory advocates for a more holistic view and emphasises that interconnections, objects and events do not exist on their own but are a part of the system. It is important to note that Systems Theory encourages interaction between subsystems. Therefore, these inputs are then converted through processing and returned to the environment as outputs. In this study, policies, plans, budget, focal persons can be defined as inputs. The management processes should convert inputs within the institution to work towards production of outputs. The researcher employed this theory in the study in order to explore and understand how Municipalities and Department of Human Settlements provide disaster response measures and post-disaster housing interventions to affected communities. In addition, this theory helps to propose a guiding framework for post-disaster housing rehabilitation and reconstruction. Ye and Okada (2002) and Sullivan (2003) also affirm the said literature reviewed that: “successful post-disaster housing reconstruction could only be possible by systematic planning to make the required resources available”. The researcher also used some variables of quantitative method to supplement and triangulate qualitative findings and for statistical data analysis purposes. Hence data collection instruments included both qualitative and quantitative approaches.

The data was collected and entered as frequencies and converted to percentages to make the responses easy to compare and convenient to display as tables and figures. For affected communities, data collection was conducted through support from local leadership and Ward Committees members. The researcher conducted interviews using a structured questionnaire which was designed for communities. The self-administered questionnaire was also developed and circulated to Disaster Management Practitioners. Structured interviews were conducted with officials from the Department of Human Settlements.

## **4.2 ANALYSIS OF RESEARCH RESULTS: AFFECTED COMMUNITIES**

The questionnaires were developed for each target group. For affected communities, a total number of 331 questionnaires were administered and 311 questionnaires were enrolled, giving a total response rate of 80%.

### **4.2.1 Section A: Biographical Data**

“According to the Community Survey conducted in 2016, the population of Alfred Duma Local Municipality is 356276. This indicates an average annual population growth rate of 0.015% per year since 2001, which is below the national population growth average of 1.17% since 2001. There are currently 4.67 people per household which gives a density of 17 households per square kilometre. The force that drives this growth is but not limited to natural causes such as birth and in-migration”. (ADLM, 2015)

The demographic profile of the respondents relates to information of the respondents in terms of age, period residing in the area, nature of residence, employment status and number of occupants. This information was used to determine whether the results were influenced by respondents’ biographic information.

#### **4.2.1.1 Age Group**

Table 4.1, indicated a widespread age group representation of people who participated in the study. The highest percentage was 51 years and above who contributed 55%; followed by young adults in the 31 – 40 group with 23%, the least being 22% which represents adults in the 41 – 50 age group. There were no responses for 20-30 years category. It can be concluded that the results reflected a true representation of people providing the independent views of different age groups, even those above 50 years. There are studies which show that in some situations the children and the elderly are more vulnerable to the impacts of natural hazards (Wisner, Blaikie, Cannon, and Davis, 2006:68). This question was included to establish the understanding of vulnerability and the impact of post-disaster housing in different age groups. (See Table 4.1)



**Table 4.1: Age Group**

Age	Frequency	Percentage
20 - 30	0	-
31 - 40	75	23%
41 - 50	69	22%
51 above	167	55%
<b>Total</b>	<b>311</b>	<b>100%</b>

Table 4.1, illustrated a large number of families headed by older people from 51 years old and above. The older and younger generations are mostly unemployed and are highly dependent to government social support grants.

#### **4.2.1.2 Period residing in Tholeni**

Respondents were asked to indicate how long they have been living in Tholeni. 81% of respondents who participated in this study have been residing in Tholeni for 16 years and longer, meaning that the respondents might have rich historic knowledge about disasters and how these disasters were managed to normalise the situation. This can be passed down from generations to generations. This sort of knowledge could contribute significantly to post-disaster housing reconstruction. 19% respondents were between 10 and 15 years. The study participants have been living in Tholeni for the longest time and this is a good for historical information of disaster incidents. This is an indication that participants could be in better position to give relevant and accurate information for the study.

#### **4.2.1.3 Housing Type**

The questionnaire asked respondents about current the types of housing occupied, Table 4.2 showed 63% of respondents are residing in mud houses, followed by 20% who are living in private rental and 15% who are living in formal brick houses. There were no responses for other categories. According to Hallegate *et.al*, (2017), the impact of disasters makes vulnerable people remain in poverty. This is also affirmed by World Disasters Report which also confirms that poor people, globally, live in homes that are highly vulnerable to natural hazards. The report states that in over 200 States, the consumption index indicated that the impoverished 20% of the people are more prone to live in delicate homes (Hallegate *et al.*, 2017). As confirmed by the literature, the results implied that study participants are living in vulnerable conditions which make them more susceptible to future disasters. (See Table 4.2)

**Table 4.2: Type of Housing**

Type of Housing	Frequency	Percentage
Mud House	196	63%
Private Rental	63	20%
Formal brick house	45	15%
Informal Shack Dweller	7	2%
Municipal Rental Stock	0	-
Backyard Dweller	0	-
<b>Total</b>	<b>311</b>	<b>100%</b>

Table 4.2 shown a substantial number of participants are living in mud houses. This implied the affected communities are living in poor conditions and standard of living is very poor which translates to vulnerability of communities. According to Alfred Duma Municipal IDP, the municipality has a high number of people who have access to a formal dwelling. This is due to concerted effort made by the municipality to provide subsidised government housing to vulnerable and deserving communities (ADLM, 2015:104). According to researcher observations, the Tholeni area is in a rural area and the majority of land is communal or belongs to societal groups called Syndicates. There is minimal access to formal housing. Most families are still building informal structures on private land and some of those are mud houses.

#### **4.2.1.4 Employment Status**

The results indicated that 86% of participants are unemployed and 14% are self-employed. The results indicated that the large numbers of participants are unemployed which means that they do not have a stable income to feed their families. Consequently they are very poor and vulnerable. Wisner *et al.*, (2006:12) also confirms that there is a high correlation between that vulnerability and poverty. Returning to normality is a struggle for vulnerable people. It is always difficult to rebuild their livelihoods post-disasters; hence, they are always dependent to the State. A substantial number of respondents are unemployed and others are self-employed. When disasters strike, poor and unemployed communities are unable to have the means to cope with the effects of disasters. Paton & Johnston (2001: 272) explained that unemployment is one of the indicators that increases vulnerability because of high dependency, limited economic means of survival and limited social networks. The unemployment status renders the majority of Tholeni residents vulnerable to disasters related incidents.

#### 4.2.1.5 Number of Occupants

The respondents were asked about the number or size of the family. Table 4.3, 38% of respondents stated that families are living with 10 -12 members, followed by 7- 9 members with 29%, 13 and above members are 18%, 1 - 3 members are 10% and a fewer number of occupants is 4 – 6 members with 5%. The results revealed that a fair number of families are leaving with members of 7 -12 people in one family. This suggests a high level of dependency due to the triple threat namely: poverty, inequality and unemployment. This vicious circle of poverty in these communities makes them more vulnerable to natural hazards. (See Table 4.3)

**Table 4.3: Number of Occupants**

Number of Occupants	Frequency	Percentage
1 - 3	33	10%
4 - 6	15	5%
7 - 9	91	29%
10 - 12	117	38%
13 above	55	18%
<b>Total</b>	<b>311</b>	<b>100%</b>

According to the Alfred Duma Local Municipality, (ADLM, 2020:100), there is an average of 4.67 people per household, which gives a density of 17 households per square kilometre. The municipality has an average growth rate of 2%. The increase of family units may result in increased demand and an overstretched limited family income. Consequently, population growth means that there is an increase in density and population structure, more especially amongst the population that forms part and parcel of the dependent population (ADLM, 2020:100). This will put pressure on government to review spatial planning, provision of houses, budget allocation and access to basic services.

#### **4.2.2 Section B: Disaster Management policies and legal frameworks implemented during post-disaster housing rehabilitation and reconstruction**

This section gives an overview of the research results regarding disaster management policies and legal frameworks for post-disaster housing rehabilitation and reconstruction. It is important to understand disaster related municipal policies and how these policies are responding to the needs of the affected communities.

##### **4.2.2.1 Municipal policies responding to post-disaster housing reconstruction**

The question stated: Do you know of any municipal policies responding to post-disaster reconstruction? This question was included to determine knowledge of the community about municipal policies responding to post-disaster housing reconstruction. As indicated in Table 4.4, 97% of respondents indicated that there were not aware of any municipal policies and only 3% of respondents were aware of municipal policies. Jha *et al.* (2010) indicate that communities must play a critical role during policy formulation, planning for disasters, risk mitigation, dissemination of information, disaster risk reduction and response and recovery. The results implied that communities are not aware of any municipal policies responding to post-disaster housing reconstruction. Public participation during policy development and review is limited. This also means that decision makers take decisions for communities and the communities are not involved during disaster planning phase. (See Table 4.4)

**Table 4.4: Municipal policies responding to post-disaster housing reconstruction**

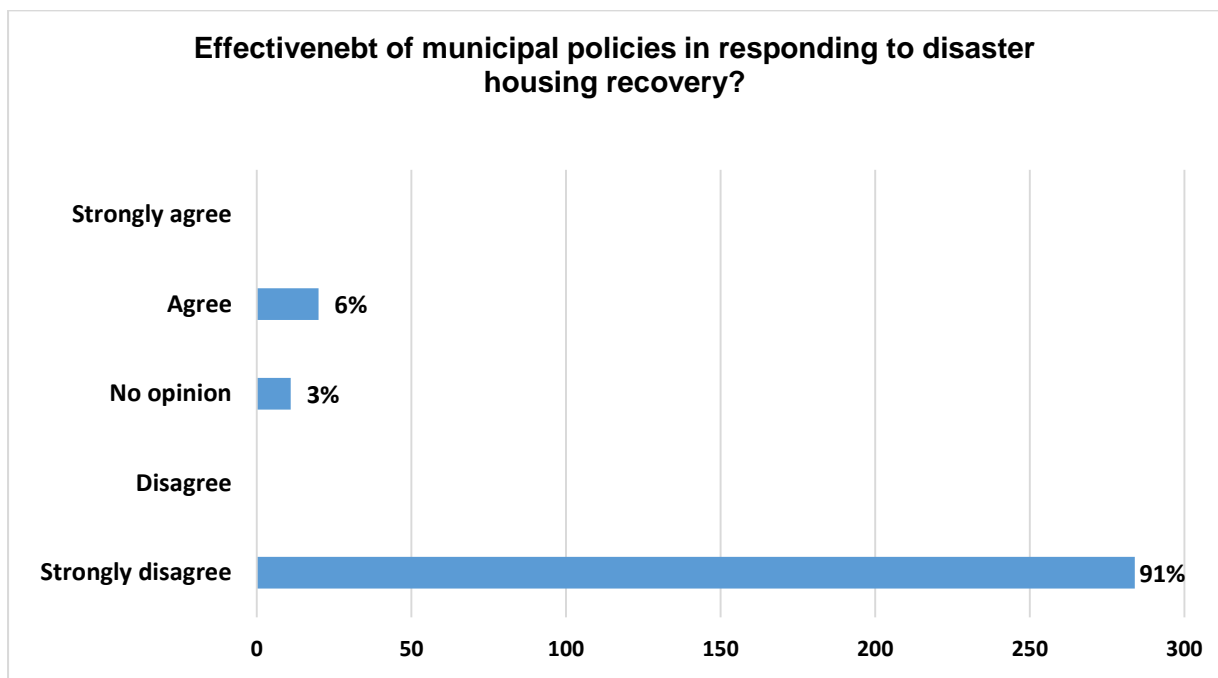
<b>Municipal policies responding to post-disaster reconstruction</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	09	3%
No	302	97%
<b>Total</b>	<b>311</b>	<b>100%</b>

Table 4.4 indicated that there is limited knowledge of any existing municipal policies. Therefore, it is imperative for communities to be involved in policy development and other activities at a local level.

##### **4.2.2.2 Do you think municipal policies are effectiveness in responding to post-disaster housing recovery?**

The research results indicated that the majority of communities were not aware of any municipal policies for post-disaster reconstruction. In the case of a positive response, a follow-up question was asked whether municipal policies are effective in responding

to post-disaster housing recovery. 91% of respondents indicated that they strongly disagreed with the statement and followed by a total of number of 6% respondents agreed with the statement and 3% respondents which are had no opinion. There were no responses for other categories. In light of the above, the results indicated that municipal policies are not responding to post-disaster housing recovery. (See figure 4.3)



**Figure 4.1: Effectiveness of municipal policies**

Figure 4.1 indicated that municipal policies are not effectively responding to post-disaster housing. Municipalities believe that post-disaster housing reconstruction is only a legal responsibility of the Department of Human Settlements. The views and perceptions of municipal officials are contrary to what the Constitution of the Republic of South Africa and Disaster Management Amendment Act 16 of 2015 have been outlining in Chapter 2. These pieces of legislation clearly stipulate that all spheres of government have a responsibility to deal with the well-being of the people and disaster response and recovery.

#### **4.2.2.3 Comments in respect of policies responding to post-disaster housing reconstruction**

The qualitative data received from comments made by one of the respondents interviewed also collaborates with the response above which showed that communities are not aware of any policies for post-disaster housing reconstruction. The respondents stated as follows: “We are not aware of any policies but municipality is providing blankets and food parcels when disaster happens, we are called by Councillors to come and report damages. The municipality will loud hail messages to the community to come to a community hall to collect food and blankets” (Respondent Number 04, between 41 -50, 27 July 2020). The majority of comments indicated that a minimal role is played by the community in policy development.

#### **4.2.3 Section C: The impact of disaster funding on the living conditions of the affected communities during post-disaster phase**

This section discusses the impact of disaster funding on the living conditions of post-disaster affected communities and implications for communities affected by disasters. It is critical to assess the nature of their homes and living conditions. This shall assist the researcher discover facts about the phenomenon and make well information recommendations.

##### **4.2.3.1 Describe the nature of the home or place where you are currently staying**

Respondents were asked to describe the nature of their home or place where they are currently staying. Table 4.5 below indicate 77% of respondents were owners of properties and 23% of respondents were renting. There were no respondents sharing category and other category. As reflected above, the study showed that participants are mainly home owners and there are few participants who are renting. Some home owners have built their houses on the privately owned land through some form of an agreement with land owners. Qualitative results also indicated that land ownership is a huge challenge for landless affected communities. (See Table 4.5)

**Table 4.5 Nature of the home or place where you are currently stating**

Nature of home	Frequency	Percentage
Owner	240	77%
Renting	71	23%
Sharing	-	-
Other	-	-
<b>Total</b>	<b>311</b>	<b>100%</b>

Table 4.5 illustrated the distribution of property ownership. A large number of participants are owning their own houses but built on a private land. Tholeni area is predominantly characterised by vast private land which is owned by a complex web of social group called Syndicate. These include the farms that belong to different trustees. There are stringent rules applied to individual tenants pertaining to the type of structures to be built on private land and the decision rests with the land owner.

#### 4.2.3.2 How do you rate your living conditions?

The respondents were asked to rate their level of living condition. According to Figure 4.4 below, 87% participants are living in poor conditions and 13% of respondents are living in good conditions. There were no respondents representing these three categories: very good, excellent and don't know. The results shown that most people are living in poor conditions due to the triple threat: poverty, unemployment and inequality. Therefore, the impact and effects of disasters might have generational burden for such affected communities to recover from a disaster. (See Figure 4.2)

**Figure 4.2 Level of living conditions**

Figure 4.2 Illustrated that large number of participants are living in poor conditions. Ruffin and Reedy (2015: 224) further state that “socio-economic inequities at local community level shape vulnerable populations and create poverty, lack of adequate housing, rising urbanisation, high rates of illiteracy and unemployment leading to risky environments”. Based on researcher’s observations during data collection process, it was evident that a large number of participants are living in abject poverty; it is difficult to recover from disaster impact without getting assistance from the State.

#### **4.2.3.3 Was your family affected by disaster incident occurred in recent years?**

This question below was included to establish whether participants have experienced disaster incidents or have been affected by disaster in recent years. The research objectives were targeting mostly affected communities. Therefore, it was imperative to ask respondents this question to ensure that research findings are relevant and reliable. Respondents were asked to indicate whether their families were affected by disasters in previous years. Table 4.6 below indicated all respondents 100% experienced disaster incidents. This implied that all affected communities who participated in the study were affected by the disaster incidents in line with the study objectives. (See Table 4.6)

**Table 4.6: Was your family affected by disasters in previous years?**

<b>Was your family affected by disaster incident for 2011 to date?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	311	100%
No	0	-
<b>Total</b>	<b>311</b>	<b>100%</b>

Table 4.6 shown the study focused on affected communities in order to get reliable answers to the research question. This implied that those who were affected by a disaster incident are in a better position to share their experiences.

#### **4.2.3.4 What type of housing assistance was provided post-disaster?**

It is important to understand the type of housing assistance provided post-disaster incidents. The respondents were asked about different types of housing assistance provided. The majority of respondents 71% who were affected by disaster incidents were unable to get housing assistance. A total of 28% respondents received housing assistance in a form of permanent houses and only 1% of respondents received



temporal shelters. The results indicated that most people who were affected could not receive housing assistance and the fewer number of participants received assistance. This implied that post-disaster housing rehabilitation and reconstruction is ineffective in terms of addressing housing needs of the affected communities. As presented by many scholars in Chapter 2 the literature, through the lens of Systems Theory, confirms that the organisation is best understood by examining its system because it reveals the total behaviour of the organisation. This means that community disaster housing needs within the context of post-disaster housing rehabilitation and reconstruction cannot be addressed in isolation within the system. The Department of Human Settlements and municipalities should review their systems in a form of inputs and process in order to produce expected outcomes within a reasonable timeframe. A large number of participants were not assisted with post-disaster housing. According to the researcher's observation, most people are heavily dependent on government support for housing assistance due to their socio –economic status. It is evident that post-disaster housing interventions could not reach all disaster affected victims. Few of affected communities received temporal shelters. There was no assistance in a form of compensation and building material. The access to adequate housing is a universal right declared by United Nations Universal Declaration of Human Rights Charter of 1948 (UDHR, 1948). It is also a basic right entrenched in the Bill of Rights of the Constitution of the Republic. The literature suggests that reconstruction period can last between two and four years depending on the resources available to assist the affected community (Haas *et al.*, 1977; UNDRO, 1982; HABITAT, 2001; Barakat, 2003). However, it should be stated that the disaster incidents in question occurred 8 years ago and affected communities had not received assistance.

#### **4.2.3.5 How long did it take for the Department of Human Settlements to provide post-disaster housing rehabilitation and reconstruction?**

The respondents were asked about how long it took for the Department of Human Settlements to provide post-disaster housing rehabilitation and reconstruction. As reflected in Table 4.7, 70% of respondents indicated that it has taken more than 6 years to get housing assistance, a total of 14% of respondents received assistance within 3 months, a total of 9% received housing assistance within 6 months and a total of 7% received housing assistance after 2 years. There were no responses for other categories. The results affirm the theory of Cosgrave (2008:102) one of the challenges

of post-disaster housing reconstruction is the prolonged process in some developed countries to deliver housing assistance to displaced families within the shortest possible time. The research results illustrated that housing assistance takes longer; 70% of respondents indicated that it has taken more than 6 years to receive assistance. (See Table 4.7)

**Table 4.7 Turnaround time for DHS to provide post-disaster housing**

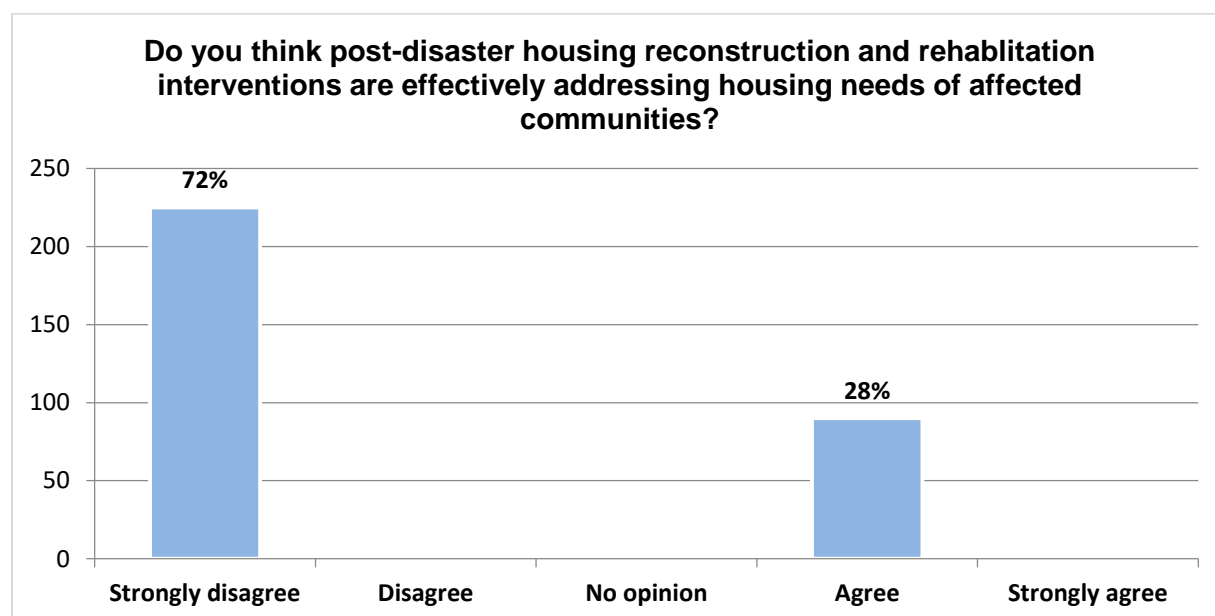
Turnaround Time	Frequency	Percentage
Less than 1 month	0	-
1 month	0	-
3 months	44	14%
6 months	27	9%
1 year	0	-
2 years	20	7%
3 years	0	-
4 years	0	-
5 years	0	-
More than 6 years	220	70%
<b>Total</b>	<b>311</b>	<b>100%</b>

Table 4.7 shown research results which indicated that housing assistance could not reach affected communities in time. In the researcher's observation, the majority of respondents were unable to get housing assistance after 8 years post disaster. However, some respondents were assisted. Patel and Hastak (2013:34) confirm that the impact of natural hazards cause extensive damages to hundreds of homes and most families are left homeless and displaced. Decision makers and disaster management practitioners are faced with the most challenging tasks of implementing post-disaster reconstruction in a short period possible.

#### **4.2.3.6 In your opinion, do you think post-disaster housing rehabilitation and reconstruction interventions are effectively addressing housing needs of affected communities?**

The question was included to establish participants' perceptions and understanding of effectiveness of post-disaster housing rehabilitation and reconstruction interventions in addressing the needs of affected communities. Figure 4.3, 72% of respondents strongly disagreed with the statement because post-disaster housing interventions have not reached affected community and 28% of respondents agreed that post-disaster housing interventions have been effective in addressing the needs of affected communities. There were no responses for other categories. In light of the above, it is

clear that post-disaster housing interventions are not effective in addressing housing needs. A large number of people are still waiting for housing assistance. However, the timeframe for the Department of Human Settlements to deliver post-disaster housing is not well defined. (See Figure 4.3)



**Figure 4.3: Post-disaster housing interventions effectively addressing housing needs**

Figure 4.3, indicated that a large number of families have not received housing assistance. Therefore, post-disaster housing reconstruction and reconstruction interventions are not fully addressing the needs of affected communities.

#### **4.2.3.7 What are the comments on post-disaster housing rehabilitation and reconstruction interventions are effectively addressing housing needs of affected communities?**

The qualitative data collected from respondents revealed that majority (72%) of affected communities were not satisfied with delivery of post-disaster housing. Comments registered during interviews with responded were captured as: On of the respondent stated that: "Housing assistance is taking longer to reach desperate affected communities" (Respondent 17, between 41-50, 27 July 2022). Another respondent indicated that "Our houses are incomplete for almost 12 months now, since the project started, we are not aware what the problem is and no one from the municipality is telling us what is going on." (Respondent 5, between 31 - 40, 18 July 2020).

#### **4.2.4 Section D: How government provide response and recovery measures for disaster affected communities?**

The section gives an overview of government response and recovery measures provided to disaster affected communities. The main objective is to assess the types of disaster relief and how they were provided in terms of turnaround time. This assisted the researcher to determine effectiveness of standard operating procedures and whether humanitarian relief provided is in line with international and national standards.

##### **4.2.4.1 What type of disaster relief was provided by the municipality to affected communities?**

Respondents were asked to indicate type of disaster relief provided during post-disaster incidents. According to the results, 71% of respondents indicated that food parcels were provided to affected communities, a total of 11% stated that blankets were provided, a total of 9% tents were provided and 5% plastic sheeting. It must be highlighted that 4% of respondents could not get any form of disaster relief assistance post-disaster incidents. The study revealed that common disaster relief provided by municipal disaster management centres is: food parcels, blankets, tents and plastic sheeting. The philosophy of the Sphere Project has two core principles focusing on affected communities: right to life dignity of the affected people and right to receive humanitarian assistance to ensure human suffering is contained and minimised. These standards are grounded in beliefs and broader rights declared in the Humanitarian Charter. This right is rooted in the provisions of international law (The Sphere Project, 2018:41). The results provided an overview of disaster relief commonly provided during post-disaster incidents: food parcels, blankets, plastic sheeting, mattresses and tents. The Sphere Project (2018) directs that humanitarian aid, shelter and settlements should be provided within the shortest possible time to save lives in the initial stages of a crisis.

#### 4.2.4.2 How long does it take for disaster management to provide immediate response after incident?

The respondents were asked how long it took for disaster management to provide immediate response after disaster incidents. As reflected in Table 4.8, a total of 46% of respondents indicated that it has taken 72 hours to get immediate relief assistance, 14% of respondents received assistance within 24 hours, 36% of respondents were above 6 months, 2% received within 12 hours, 1% of respondents received within 2 weeks, 1% received within 1 week. There were no responses for other categories. The disaster management policies stipulate that disaster response should be provided within a reasonable time frame in order to restore dignity of the affected communities. The Core Humanitarian Standards and the minimum standards support planning of responses to provide right humanitarian relief to the most in need at the right time (The Sphere Project, 2018:20). The time factor is also always of great essence to protect the well-being and human dignity of those in need as outlined by the Sphere Handbook and Constitution of the Republic of South Africa. (See Table 4.8)

**Table 4.8: Turnaround time for immediate response to affected communities**

Turnaround Time	Frequency	Percentage
6hrs	0	-
12hrs	5	2%
24hrs	44	14%
72hrs	148	46%
1 Week	1	1%
2 Weeks	1	1%
3 Weeks	0	-
1 Month	0	-
3 Months	0	-
6 Months	0	-
Above 6 Months	112	36%
<b>Total</b>	<b>311</b>	<b>100%</b>

Table 4.8, indicated that disaster response turnaround time as a challenge. In the researchers' observation, the majority of respondents were able to get disaster immediate relief assistance within three days' post-disaster incidents. However, the results are way off the mark compared to the turnaround time. The disaster response is 6 hours as per KZN Standard Operation Procedure. These results implied that most of disaster response was not provided within turnaround time.

#### **4.2.5 Section E: Challenges faced in post-disaster housing rehabilitation and reconstruction**

This section discusses the challenges in post-disaster housing rehabilitation and reconstruction. The main aim of this section seeks to understand challenges experienced by the community during the post disaster recovery phase.

##### **4.2.5.1 What are critical challenges experienced during post-disaster housing rehabilitation and reconstruction?**

The qualitative responses were recorded wherein respondents were asked to comment about critical challenges experienced during post-disaster post- disaster housing rehabilitation and reconstruction. Comments extracted from structured responses on challenges were summarised as: “Shortage of water during construction, poor response to housing needs, the family is poor and require government assistance, building material was not delivered on time and some families could not benefit from housing assistance, poor communication.” (Respondent 107, above 50, 12 June 2020). The second respondent stated that: “Housing assistance is taking longer to reach desperate affected communities.” (Respondent 17, between 31-40, 27 July 202). “Our houses are incomplete for almost 12 months now, since the project started, we are not aware what the problem is and no one from the municipality is telling us what is going on.” (Respondent 5, above 50, 18 July 2020). “Delayed housing assistance to affected communities and there is no communication from government about what is the problem.” (Respondent 30, between 41-50, 27 July 2020).

##### **4.2.5.2 Comments on how government could improve feedback on post-disaster housing rehabilitation and reconstruction**

The respondents were further asked to comment on how government could improve feedback on post- disaster housing rehabilitation and reconstruction. Comments extracted from structured responses on challenges were summarised. One of respondents stated that: “The government must use Ward Committees and Councillors to communicate with communities and provide regular feedback to the affected communities.” (Respondent 98, between 41-50, 13 August 2020). The second respondent indicated: “Disaster incidents must be reported and feedback must

be provided to communities affected. Councillors must be held responsible.” (Respondent 286, above 50, 13 August 2020).

#### **4.2.5.3 Comments on the quality of houses built through post-disaster housing rehabilitation and reconstruction**

The respondents were asked to provide comments on the quality of houses built through post-disaster housing rehabilitation and reconstruction. Comments extracted from structured responses on challenges were summarised. The first respondent stated that: “The house is in a good conditions but it is too small for 7 family members.” (Respondent 17, above 50, 23 July 2020). The second respondent indicated that: “The house is in a good conditions but plaster is peeling off.” (Respondent 11, 23 July 2020). The last comment from many other respondents stated that: “We are living in a partially damaged mud house since 2014; the mud house can collapse at any time. We are not happy with our government has failed to assist me and my family, my last days are coming and I will leave my family without a proper house.” (Respondent 15, above 50, 22 July 2020).

Bases on the researcher’s observations, some built houses had minor defects such as leaking gutter system, poor plastering and minor structural as well as poor workmanship, such as poor foundations levels which resulted in seeping water inside some houses during rainy season. It should be indicated that the majority of built houses were intact and in good condition. (See pictures in Figure 4.4)



**Figure 4.4: Minor defects and poor quality of houses**

#### 4.2.5.4 Rating of level of satisfaction

The respondents were asked to rate the level of satisfaction with the quality of houses built, this question was only applicable to disaster affected victims. As reflected in Figure 4.5, 83% of respondents rated level of satisfaction as poor, followed by 14% of respondents who rated satisfaction as good and 3% of respondents rated very good. There were no responses for other categories. This implied that affected communities are not happy with how government is responding to their plight. The snail pace response or lack of rapid response to post-disaster housing interventions is an indictment to basic human rights of the affected communities. (See Figure 4.5)



**Figure 4.5: Level of Satisfaction**

Figure 4.5 shown that the community were dissatisfied with quality of houses built because a large number of affected people could not receive assistance.

#### 4.2.5.5 Comments on level of satisfaction

The qualitative responses received from respondents regarding their level of dissatisfaction were: delayed housing assistance, assistance was not provided to affected communities; houses were built in some areas but were incomplete. In some instances, where houses were built, the quality of houses was not up to standard and contributed to respondent's perception and low scoring. (See Figure 4.6)





**Figure 4.6. Pictures of damaged mud houses**

#### **4.2.5.6 In your view, is community involvement critical during post-disaster housing reconstruction and reconstruction?**

Respondents were asked about their views on community involvement during post-disaster housing reconstruction. The core philosophy of the Sphere Project promotes participation of affected communities in all stages of post-disaster recovery (The Sphere Project, 2018). It is important to understand the perceptions of the community about their roles in post-disaster housing reconstruction. The majority of respondents 76% agreed that the community has a significant role to play and 24% strongly agreed with the statement. There were no responses for others categories. The results gave an overview that community has a critical role to play in post-disaster housing reconstruction. The Disaster Management Act (Republic of South Africa, 2002) also asserts and put more emphasis on community participation which should be placed as an integral part of all disaster management activities.

#### **4.2.5.7 Specify what could be the role of the community**

Based on the qualitative data collected during interviews conducted with affected communities, a follow-up question was asked to ascertain supporting statements for respondents who answered “strongly agree” and “agree”, to further indicate what could be the role of the community. Comments received from respondents were summarised as: “The community could assist with provision of water during construction, assist with building of houses, could assist with reporting of disaster incidents to ensure that all affected communities are not left behind” (Respondent 16, 21 July 2020), and: “Community structure could assist with identification of vulnerable households.

#### **4.2.5.8 What are your recommendations to government in improving post-disaster housing rehabilitation and reconstruction?**

Based on the qualitative data collected during interviews conducted with affected communities, the respondents were asked about what are recommendations to government in improving post-disaster housing rehabilitation and reconstruction. Comments extracted from structured responses on recommendations were summarised: "Government must provide temporal shelters and building material. Government must fast track housing assistance for affected communities." (Respondent 08, above 50, 27 July 2020). Another respondent stated: "Housing assistance should be provided immediately. Government must respond quickly to the affected families. Post-disaster housing should not discriminate against poor people." (Respondent 04, between 41-50, 27 July 2020). Lastly, one of respondents stated that: "Government should supply temporal shelter and building material, it is a quick option to assist affected communities." (Respondent 15, between 31-40, 27 July 2020).

#### **4.2.6 The summary analysis of empirical results from affected communities**

In summary, the quantitative and qualitative data collected and analysed for affected communities, was subdivided into four (4) thematic areas: Demographics of participants, disaster management legislative and policy framework implemented during post-disaster housing rehabilitation and reconstruction, the impact of disaster funding on the living conditions of the affected communities during post-disaster phase, provision of government disaster response and recovery measures and challenges faced in post-disaster housing rehabilitation and reconstruction. The community's basic demographics indicators were recorded including age group, employment status, number of occupants, period of residence and type of housing. This exercise was undertaken to understand the living conditions. The results indicated that communities have large size families, are highly vulnerable and were not happy with their standard of living. This implied that they are highly dependent on the State for recovery from disasters. The results further revealed that community are not aware of any policies related to post-disaster housing reconstruction.

It was evident that affected communities received disaster relief. However, there were concerns raised by communities about delayed response time. Affected communities

stated that post-disaster housing reconstruction interventions were not addressing housing. This implied that post-disaster housing rehabilitation and reconstruction is not effective. In terms of general challenges, the community sighted poor quality of built houses for those who are fortunate to get houses, poor communication and delayed response to their plight. In conclusion, affected communities recommended that government should supply temporal shelter and building material. This is a quick option to assist affected communities and government should provide regular feedback to affected communities.

#### **4.3 ANALYSIS OF RESEARCH RESULTS FROM DISASTER MANAGEMENT OFFICIALS**

Disaster Management Officials involved in the day-to-day operational issues of disaster risk management in the KwaZulu-Natal Province, were identified as a population sample because challenges of post-disaster housing are common to all disaster management practitioners. Disaster Management Practitioners were also selected because of their vast experience and in-depth knowledge as well expertise in the field of disaster risk management. Disaster Management Practitioners completed self-administered questionnaires for validation and reliability of study results for triangulation purposes. Creswell (2013:56) states that the use of triangulation in research enables the researcher to validate research results and assess whether the results collaborate with one another. In other words, data collection is inclusive of multiple sources and enhances the reliability of the responses. The structured questionnaire was developed and circulated to 30 Disaster Management Practitioners in the Province. A total of 26 questionnaires were returned, giving a total response rate of 96%.

##### **4.3.1 Section A: Biographical Data**

The section gives an overview of demographic profile of the respondents which includes: age group, current position in the field of disaster management, period of service, level of education and experience in post-disaster housing reconstruction. The main purpose is to understand and get in-depth knowledge from experienced Disaster Management practitioners. They provided credible information which assisted to enrich research findings.

#### 4.3.1.1 Age Group

The respondents were requested to indicate their age group. A breakdown of the respondents' age is represented in Table 4.9 below. The results indicated that the majority 65% of respondents are between 41-50 years old, followed by 27% of respondents are between 31- 40 years old and the minority 8% indicated that they are between 20-30 years old. There was no response for 51 and above. The results indicated that the majority of disaster management practitioners are well seasoned officials and they have a high level of expertise in the field and this added value to the credibility of the study. (See Table 4.9)

**Table 4.9: Age Group**

Age	Frequency	Percentage
20 - 30	2	8%
31 - 40	7	27%
41 - 50	17	65%
51 above	0	-
<b>Total</b>	<b>26</b>	<b>100%</b>

Table 4:9 shown that participants are matured and have high level of competence in public sector, Hence, they perfectly fit the study population and able to answer questions of the study and provided rich information to enhance reliability and validity of the study.

#### 4.3.1.2 Current position in the Disaster Management Centre

Respondents were asked to indicate current positions in their current organisations. The research results show that the majority of respondents are junior, middle and senior management. 40% of respondents were Head of Centres, followed by 36% of Disaster Management Officer, 11% of Deputy Directors and 11% Managers, 2% respondent of Assistant Director. The researcher's observation indicated that there was diversity in the form of their occupations which provides rich and valid data for the study. Disaster Management Practitioners work with post-disaster housing reconstruction on daily basis and they are highly competent and efficient. The results provided relevant information and experiences to the study. (See Table 4.10)

**Table 4.10: Current Position in Disaster Management Centre**

Current Position	Frequency	Percentage
Fire Officer and below	0	-
Disaster Management Officer	9	36%
Assistant Director	1	2%
Deputy Director	3	11%
Manager	3	11%
Head of the Centre	10	40%
Director and Above	0	-
<b>Total</b>	<b>26</b>	<b>100%</b>

Table 4.10 gave an overview of the research results. This indicated an industrial and value of experience within practitioners which makes the content of the study to be rich and trustworthy.

#### 4.3.1.3 Period of service in the Disaster Management Centre

Respondents were asked about their years of experience in disaster management. The significance of experience in any field showed level of competence and comprehension of the job and responsibilities. As indicated in Table 4.11, the years of experience ranged from 1 year to more than 16 years. The results indicated 50% respondents had 10 – 15 years' experience in disaster management, followed by 38% respondents with 1 – 5 years' experience, 12% represent 5 -10 years' experience. The majority of respondents had vast experience in the field of disaster management. This expertise and knowledge provided credible information and added value to the study. This is a sign of valid and quality data as a high number of years in a particular field or organisation reflect solid institutional memory. (See Table 4.11)

**Table 4.11: Period of Service**

Period of Service	Frequency	Percentage
1 – 5 years	10	38%
5 – 10 years	3	12%
10 – 15 years	13	50%
Above 16 years	0	-
<b>Total</b>	<b>26</b>	<b>100%</b>

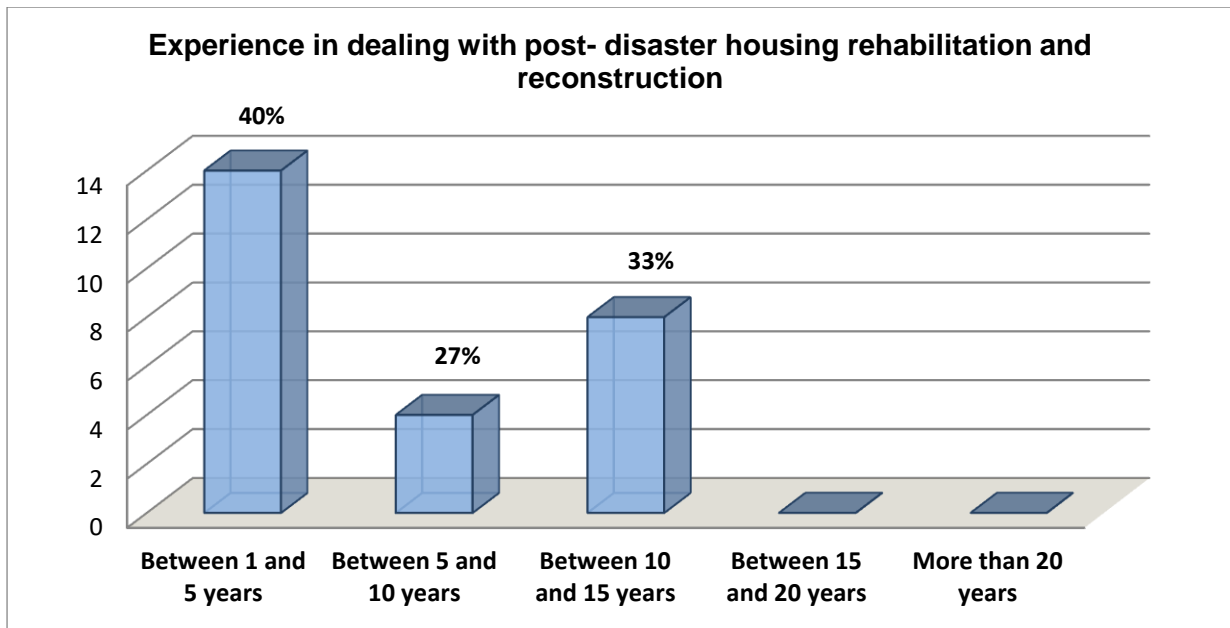
Table 4.11: shown the number of years of disaster management practitioners practicing within the field of study. It is an impressive indicator that these officials have experience, skills, understanding of policies, extensive knowledge of good practises and gaps within the systems. This information is critical for the worthiness and relevance of the study.

#### **4.3.1.4 Level of Education**

“Participants’ level of education is important in indicating their ability to respond satisfactorily to questionnaires and to reduce incidents of uncertainty” (Malhotra 2004:177). The research results shown that 79% of participants have post-graduate qualifications which mean a large number of participants are highly educated and responses provided are processed using such experience, while 21% obtained bachelor’s degree qualifications. There no response for other categories: Doctorate, Diploma, Masters, Matriculations and Higher Certificate). This implied that the education level indicates participants may be in a state where they can contribute with their knowledge and perceptions which can be viewed as important to build body of knowledge in disaster management. This research results shown that a high number of participants have higher education. The level of education is a significant indicator of competence, skills and cognitive thinking.

#### **4.3.1.5 Experience in dealing with post-disaster housing reconstruction**

Respondents were asked about years of experience in dealing with post-disaster reconstruction. As indicated in Figure 4.7, the years of experience ranged from 1 year to more than 20 years. The results indicated 33% respondents had 10 – 15 years’ experience, followed by 27% respondents between 5 – 10 years’ experience, 40% represent 1 - 5 years’ experience. There were no responses for other categories. The research results indicated vast experience of disaster management practitioners working with post-disaster housing rehabilitation and reconstruction. This confirms credibility of information, richness of data and adding value to the study. (See Figure 4.7)



**Figure 4.7: Experience in dealing with post-disaster housing reconstruction**

Figure 4.7 shown that a large numbers of participants have experience in post-disaster reconstruction. The lessons learnt from previous disasters could be used to improve the content and information of the study. The experience can also contribute towards accurate and reliable outcomes of the study.

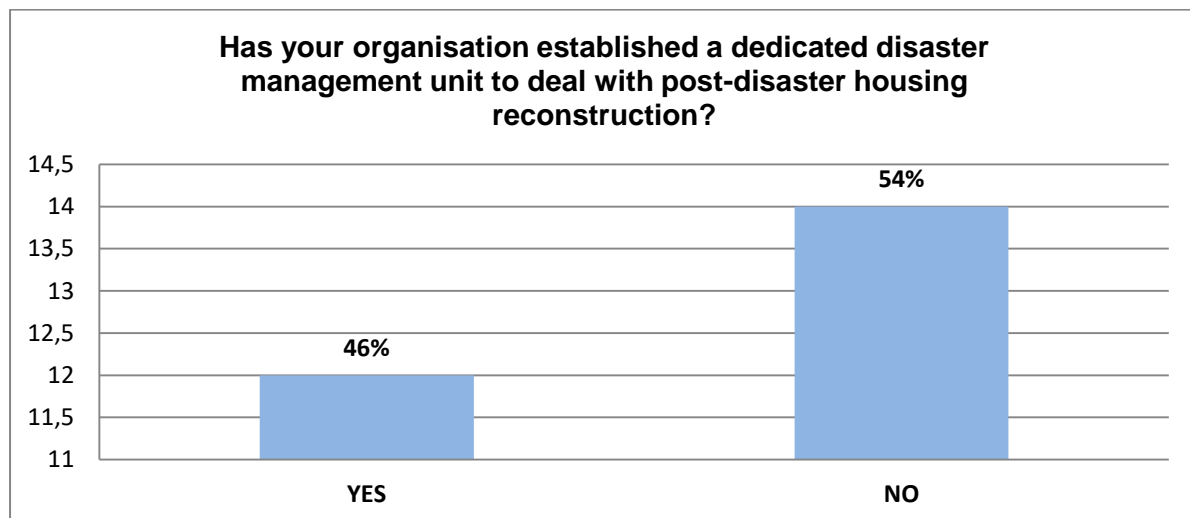
#### **4.3.2 Section B: Disaster management policies and legal frameworks implemented during post-disaster housing rehabilitation and reconstruction**

This section gives an overview of research results on disaster management policies and legal frameworks for post-disaster housing rehabilitation and reconstruction. It is important to understand existing disaster related municipal policies and how disaster management practitioners implement these policies and to assess any policy gaps in these polices for provision of response to the needs of affected communities.

##### **4.3.2.1 Has your organization established a dedicated focal point to deal with post- disaster housing rehabilitation and reconstruction projects?**

The question was asked whether municipal disaster management centres have a dedicated focal point to deal with post-disaster housing reconstruction. In Figure 4.8, 54% of respondents had not established a focal point and 46% of respondents had established dedicated disaster management focal points. “The Disaster Management Amendment Act No 16 of 2015 requires local municipality to establish capacity for the

development and coordination of a disaster management plan and the implementation of a disaster management function for the municipality” (Republic of South Africa, 2015). The principal Act calls for: “each metropolitan and each district municipality to establish in its administration a disaster management centre for its municipal area” (Republic of South Africa, 2003). This implied that some municipalities are in compliance with legislation and others are still lagging behind in terms of compliance which compromises delivery of services. (See Figure 4.8)



**Figure 4.8: Establishment of a dedicated disaster management unit to deal with post-disaster housing reconstruction**

Figure 4.8, indicated that substantial number of municipalities do not have the capacity to deal with post-disaster housing reconstruction. This is a reflection on the functionality of some municipalities who face challenges in discharging and coordination of disaster management function, including post-disaster housing reconstruction interventions.

#### **4.3.2.2 Does your organisation have a disaster management plan?**

The question was asked whether disaster management centres had developed a disaster management plan. The results indicated that the majority 100% of respondents had developed a disaster management plans. The results implied that all respondents had developed disaster management plan which points to the direction of meeting minimum compliance requirements of Disaster Management Act 57 of 2002. A large number of municipalities have developed disaster management plans. This implied that municipalities are in compliance with legislation. However, the development of disaster management plans does not literally mean that municipalities



are effective in provision of post-disaster housing interventions, but it is a sign of compliance and the next step is to ensure that disaster management plans are fully resourced and financed in order to deliver expected outcomes.

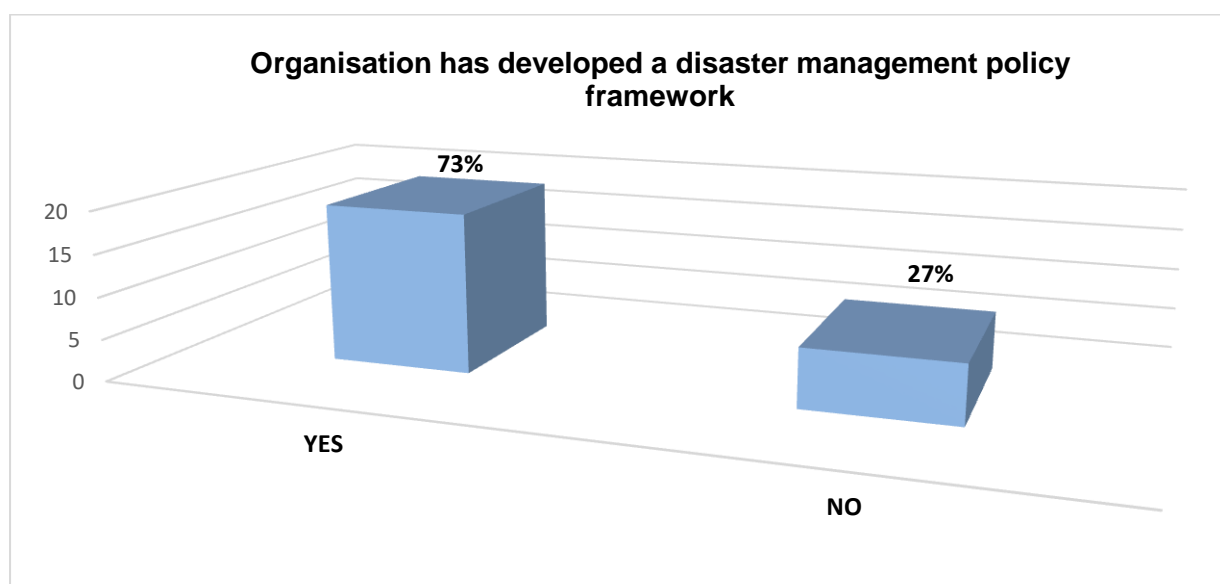
#### **4.3.2.2 Does the disaster management plan incorporate emergency housing recovery strategies?**

The research asked respondents about disaster management plan incorporating emergency housing recovery strategies to evaluate level of preparedness for emergency housing provision by municipalities. The results indicated that 65% of respondents indicated that disaster management plans do not include provision for emergency housing and 35% of respondents had disaster management plans inclusive of emergency housing provision. There is passive planning for post-disaster housing reconstruction by municipalities since there is a believe that this function is a sole legislative mandate of the Department of Human Settlements whilst “Section 152(1)(d) of the Constitution requires local government to ensures a safe and healthy environment”. It must be emphasised that all three spheres have concurrent functions and required to contribute in disaster management. This is consistent with the operational proximity of the local government to the communities, as opposed to other spheres of government. Therefore, planning for emergency housing is critical for local government. The overview of results implied that disaster management plans developed are not inclusive of post-disaster housing, therefore when this critical information is not considered and the state of preparedness for post-disaster housing rehabilitation and reconstruction is overlooked during planning stage.

#### **4.3.2.3 Does your organisation have developed a disaster management policy framework?**

The development of the Municipal Disaster Management Framework (MDMF) is a legal requirement, as required by Section 42 of the Disaster Management Act. As with the provincial and national mechanisms, the MDMF promotes a coordinated and integrated way of managing disasters at a municipal level (Republic of South Africa, 2005). Respondents were asked about the development of a disaster management policy framework in their organisation. Figure 4.9, 73% of respondents had developed a policy framework and 27% of respondents had not developed a policy framework. This means that municipalities comply with development of disaster management

policies. However, the compliance does not mean that post-disaster housing reconstruction is considered as a critical component of the policy. (See Figure 4.9)



**Figure 4.9 Responses on development of policy framework**

Figure 4.9 shown that majority of municipalities have developed policies and some municipalities are still struggling to comply with provisions of the legislation. This non-compliance translates to poor state of readiness for municipalities to deal with post-disaster housing reconstruction and other disaster management activities.

#### **4.3.2.4 Does the policy framework outline the importance of post-disaster housing reconstruction?**

The integration of post-disaster housing reconstruction in policy framework is important. The respondents were asked about such integration. Table 4.12, 81% of respondents stated that policy frameworks do not include post-disaster housing reconstruction and 19% respondents indicated that policy frameworks do include post-disaster housing reconstruction. This implied that policies are developed but without any consideration and inclusion of post disaster housing reconstruction. The National Policy framework promotes integrated disaster management policies which incorporates all KPAs and Enablers. Therefore policies should be inclusive of all aspects of disaster management (Republic of South Africa, 2005). (See Table 4.12)

**Table 4.12: Policy framework outlining the importance of post-disaster housing reconstruction**

Does the policy framework outline the importance of post-disaster housing reconstruction?	Frequency	Percentage
Yes	5	19%
No	21	81%
<b>Total</b>	<b>26</b>	<b>100%</b>

Table 4.12 indicate that post-disaster housing rehabilitation and reconstruction is not incorporated into municipal policies because of the assumption that post-disaster housing is national and provincial competence. Municipalities has minimal role to play during these process. Whilst literature and legislation state categorically that all spheres (National, Provincial and Local governments) have a critical role to play in building capacity for disaster management which includes disaster response and recovery.

#### **4.3.2.5 Is the policy framework addressing current challenges of post-disaster housing rehabilitation and reconstruction?**

The respondents were asked to indicate whether the policy framework is addressing challenges of post-disaster housing reconstruction. As indicated in Table 4.13, a total of 50% respondents strongly disagreed with the statement and 31% of participants disagreed. It must be indicated that 8% of respondents agreed with the statement whilst 11% of respondents strongly agreed. There was no response for no opinion category. The research results indicated that there is a policy gap in ensuring that policy frameworks are inclusive of strategies to address challenges of post-disaster housing reconstruction. (See Table 4.13)

**Table 4.13: Policy framework addressing current challenges of post-disaster housing reconstruction**

Is the policy framework addressing current challenges of post-disaster housing reconstruction?	Frequency	Percentage
Strongly disagree	13	50%
Disagree	8	31%
No Opinion	0	-
Agree	2	8%
Strongly agree	3	11%
<b>Total</b>	<b>26</b>	<b>100%</b>

Table 4.13 illustrated that strategies and policies for post-disaster housing reconstruction are not included in municipal policies owing to inappropriate assumption that this function is only for national and provincial spheres of government.

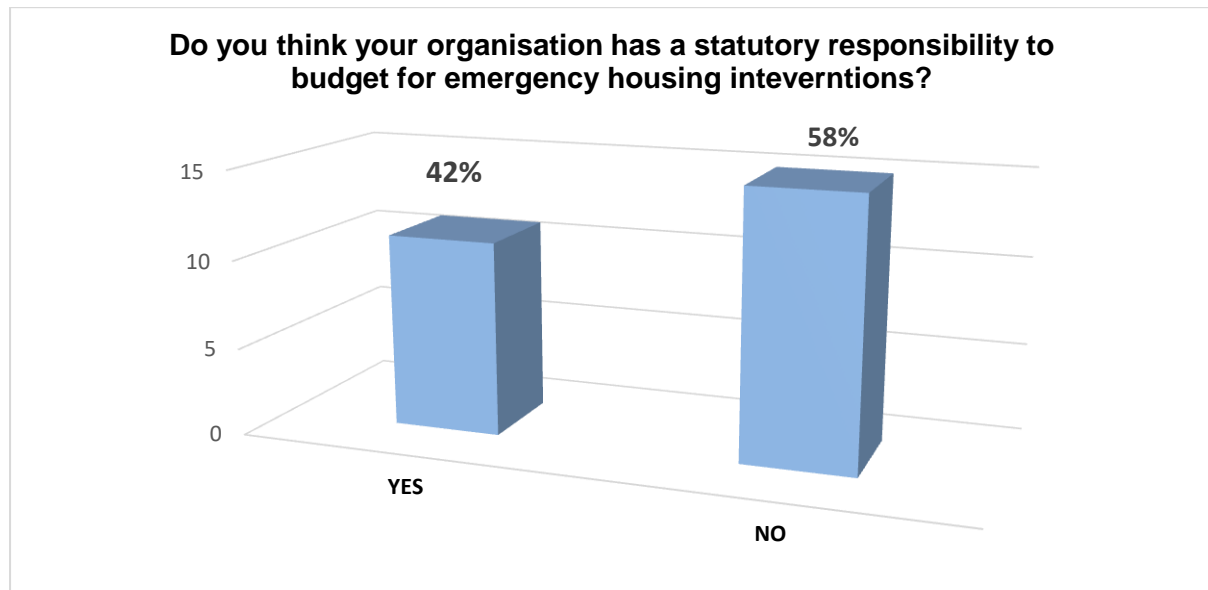
#### **4.3.3 Section C: The impact of disaster funding on the living conditions of the affected communities during post-disaster phase**

This section discusses the impact of disaster funding on the living conditions of post-disaster affected communities. It is critical to assess statutory responsibility of municipalities and budget commitment towards emergency housing, to assess the impact of direct funding for post-disaster housing reconstruction and to test the views of disaster management practitioners on the proposed model for funding.

##### **4.3.3.1 Do you think your organisation has a statutory responsibility to budget for emergency housing recovery?**

The participants of the study were asked about statutory responsibility of their organisations to budget for emergency housing recovery. As indicated in Figure 4.10, 58% of respondents indicated that there is no statutory responsibility and 42% of respondents indicated that there is an element of statutory responsibility to budget for emergency housing interventions. This is contrary to the research results, where most practitioners believe that municipalities have minimal legislative role to play in terms of budgeting for emergency housing recovery. However, “Disaster Management Amendment Act No 16 of 2015 requires the local municipality to establish capacity for the development and coordination of a disaster management plan and the implementation of a disaster management function for the municipality” (Republic of South Africa, 2015). The principal Act calls for “each metropolitan and each district municipality to establish in its administration a disaster management centre for its municipal area” (Republic of South Africa, 2003). Van Niekerk (2005:117) stresses that all spheres of government have a significant role to play in providing response measures in a form of temporal relief and medium-long term interventions to affected communities. This is also affirmed by Duze (2016) in his dissertation work where he stated that Municipal Disaster Management Centres (MDMCs) are legislatively

mandated to ensure coordination and integration of disaster management as a whole which includes proactive and post-disaster interventions. (See Figure 4.10)



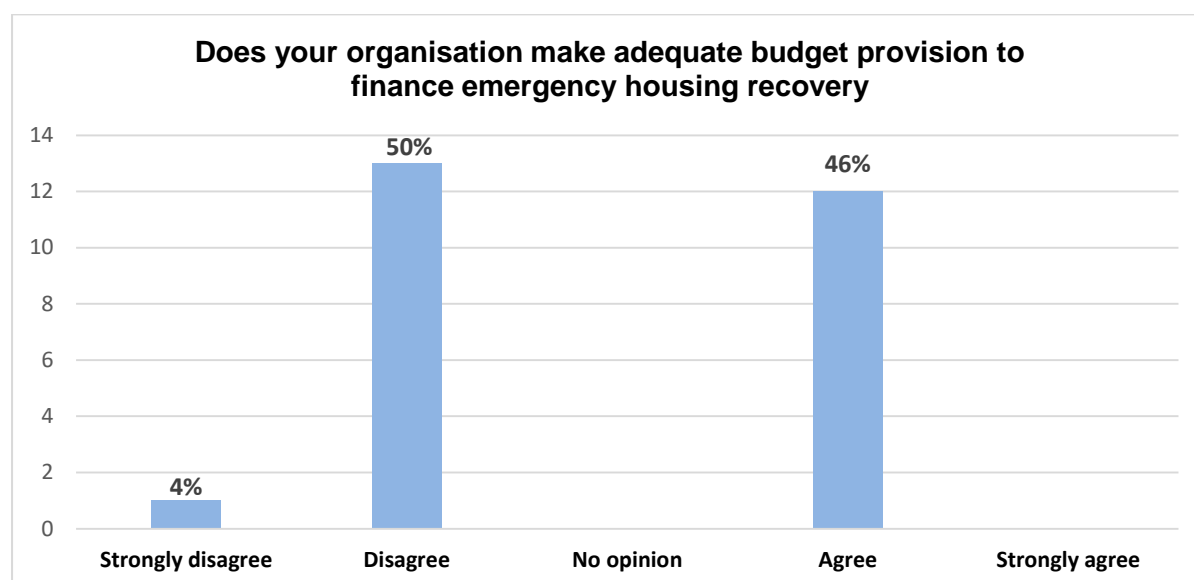
**Figure 4.10: Statutory responsibility to budget for emergency housing interventions**

Figure 4.10, illustrated that municipalities still consider emergency housing interventions as unfunded mandate. Consequently, no budget provision is made for disaster response and recovery especially emergency housing provision, whilst all disaster management functions are budgeted for internally through equitable share and other additional allocations made as and when necessary such as disaster grants for emergency housing.

#### **4.3.3.2 Does your organisation make adequate budget provision to finance emergency housing recovery?**

Respondents were asked to indicate whether their organisations make adequate budget provision to finance emergency housing recovery. As indicated in Figure 4.11, the results revealed that 50% respondents disagreed, 46% respondents agree with the statement and 4% respondents strongly disagreed. This implied that funding for emergency housing or post-disaster housing reconstruction may not fall squarely into local government but municipalities become implementing agents on behalf of Provincial Department of Human Settlements. Van Niekerk (2005:117) stresses that all spheres of government have a role to play in providing response measures in a form of temporal relief and medium-long term interventions to affected communities. Due to proximity of municipalities, delayed response by the Department as well as socio-economic state of communities, municipalities have a responsibility to become

involved in budget provision for temporal accommodation to affected communities. The planning and application of disaster risk reduction must be in line with the processes of municipal IDP planning and implementation (Duze, 2016). In cases, where municipalities should make budget provision for humanitarian aid and emergency housing interventions, such provisions should be included in the IDP process. (See figure 4.11)



**Figure 4.11: Adequate budget provision to finance emergency housing recovery**

Figure 4.11 shown that a substantial number of municipalities do not make adequate budget for emergency housing recovery because of misunderstanding of legal responsibilities of local government as prescribed by the legislation. The results also indicated that some municipalities do make budget provision for emergency housing recovery.

#### **4.3.3.3 Comments in respect to budget provision for emergency housing by municipalities**

Comments sourced from qualitative data collected were captured as: “There is a need for an increased and adequate budget allocation for emergency housing due to increase of incidents that leave many communities in need of emergency housing. The increase could be due to climate change that has brought about severe weather patterns with harsh impact.” (Respondent No 10, between 41-50 24 June 2020). “Budget allocation is limited and does not cater for housing response measures at a municipal level” (Respondent No 17, between 31-40, 17 July 2020).

#### **4.3.3.4 Do you think funding has direct impact on effective delivery of post-disaster housing reconstruction?**

The participants of the study were asked whether funding has a direct impact on effective delivery of post-disaster housing reconstruction. In Table 4.14: the results of the study indicated that 62% of respondents strongly agreed with the statement, a total of 19% of respondents agreed, a total of 11% of respondents disagreed and 8% of respondents strongly disagreed. There was no response for no opinion category. This means that funding has a detrimental effect on the effective delivery of post-disaster housing reconstruction projects. Non-approval and delays with approval of disaster funding might jeopardise communities on the queue for disaster housing assistance. (See Table 4.14)

**Table 4.14: Funding with direct impact on effective delivery of post-disaster housing reconstruction**

<b>Do you think funding has direct impact on effective delivery of post-disaster housing reconstruction?</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly disagree	2	8%
Disagree	3	11%
No Opinion	0	-
Agree	5	19%
Strongly agree	16	62%
<b>Total</b>	<b>26</b>	<b>100%</b>

A table 4.14 illustrated that large numbers of respondents think that funding has a direct impact on effective delivery of post-disaster housing reconstruction. This is also confirmed by literature where Van Niekerk and Visser (2009) also identified limited funding as one of the challenges in addressing the effects of disasters occurred in municipalities and provinces

#### **4.3.3.5 Comments on funding having a direct impact on effective delivery of post-disaster housing reconstruction**

Based on the qualitative and descriptive data collected, some of the comments were summarised as follows: “The district is mostly affected by disasters and households are destroyed. Due to the backlog of housing delivery from Department of Human Settlements, there is a need for municipalities to budget for post-disaster housing reconstruction.” (Respondent No 08, between 31-40, 12 August 2020). Another respondent stated that: “Inadequate funding result in less effective emergency

housing provision. There is a need for adequate funding to ensure effective and adequate provision.” (Respondents No 09, between 41-50, 24 June 2020).

#### **4.3.3.6 What is your view on current national funding model for post-disaster housing rehabilitation and reconstruction?**

Based on the qualitative and descriptive data collected, some of the comments were summarised as follows: “National Government should transfer funding direct to municipalities in Disaster Management Centres.” (Respondent No 10, between 41-50, 24 June 2020). The funding model should be according to municipal population needs (person per capita income) and financial viability not the same conditional grant for every municipality.” (Respondent No 09; between 31-40; 24 June 2020). “Funding model is good but if funding and implementation of projects could be fast tracked.” (Respondent No 24, between 31-40, 05 August 2020). “Because the funds were to the municipalities, it would be more efficient to coordinate the emergency housing interventions.” (Respondent No 19, between 41-50, 28 July 2020). “It is not enough and not efficient. It delays response turnaround time.” (Respondent No 12, between 31-40, 24 June 2020).

#### **4.3.4 Section D: How government provide response and recovery measures for disaster affected communities?**

This section discusses how government provided response and recovery measures for disaster affected communities. The main purpose of this section is to understand views and experiences of disaster management practitioners about the type of disaster relief provided, the turnaround time, views on the effectiveness of disaster response measures and feedback to the affected communities.

##### **4.3.4.1 What type of disaster relief is provided by your institution to affected communities?**

The participants of the study were asked to indicate the type of disaster relief provided during post-disaster incidents. As reflected in Table 4.15, 38% indicated that blankets provided to affected communities, a total of 27% respondents stated that blankets were provided, followed by a total of 15% respondents indicated mattresses, a total of 12% respondents indicated tents and 4% respondents indicated plastic sheeting as well as temporal shelter respectively. There were no responses from other categories.



The study revealed that common disaster relief provided by municipal disaster management centres is: blankets, food parcels, tents and plastic sheeting.

**Table 4.15: Type of disaster relief provided to affected communities**

Type of disaster relief provided to affected communities	Frequency	Percentage
Blankets	10	38%
Tents	3	12%
Plastic Sheeting	1	4%
Mattresses	4	15%
Food Parcels	7	27%
Temporal Shelter	1	4%
Other	0	-
<b>Total</b>	<b>26</b>	<b>100%</b>

Figure 4.15 indicated various types of disaster relief material provided to affected communities which include: blankets, food parcels, mattresses, tents, plastic sheeting and temporal shelters. This implied that a substantial number of municipalities made budget provision for disaster relief material. However, some municipalities made limited budget made for emergency temporal shelters.

#### **4.3.4.2 What is the standard turnaround time for immediate response after incidents?**

The respondents were asked how long it took for disaster management units to provide immediate response after disaster incidents. The study revealed that the majority of respondents, 35% provided immediate response within 6 hours, 19% responded within 12 hours, 12% of responded within 72 hours, 11% responded within 30 minutes, 8% respondents respond within 4 hours. There were no responses for other categories. The results implied that large number of respondents received immediate relief within turnaround time of 6 hours. However, it was also noted that not all respondents provided immediate relief within turnaround time. (See Table 4.16)

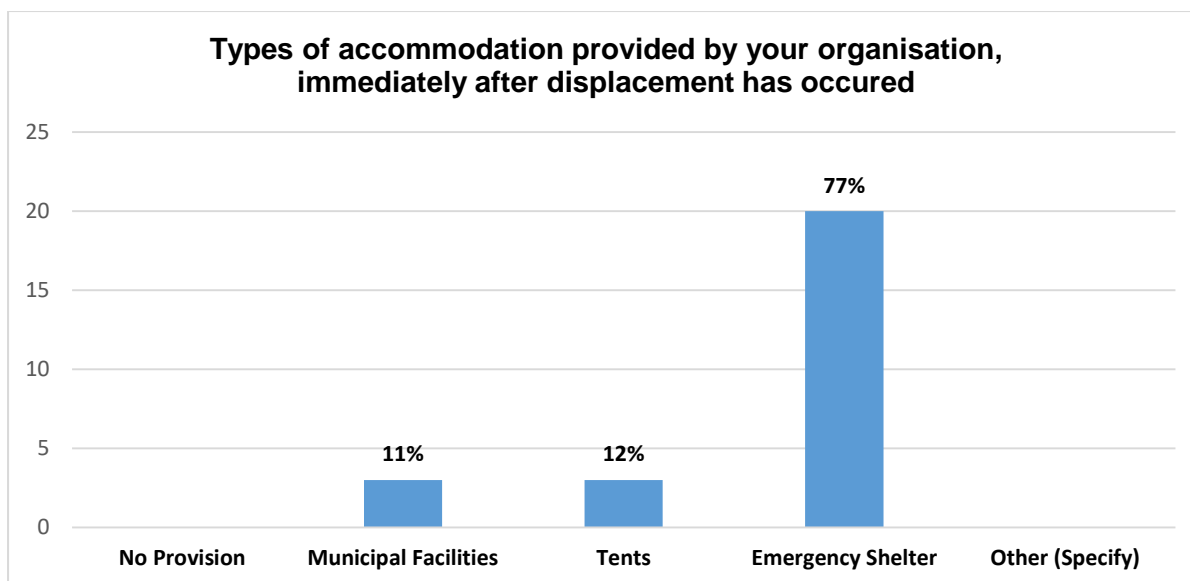
**Table 4.16: Turnaround time for immediate response to affected communities**

<b>Turnaround Time</b>	<b>Frequency</b>	<b>Percentage</b>
30 mins	3	11%
1 hr	0	-
2 hrs	0	-
3 hrs	0	-
4 hrs	2	8%
5 hrs	0	-
6 hrs	9	35%
7hrs	0	-
12hrs	5	19%
24hrs	4	15%
72hrs	3	12%
<b>Total</b>	<b>26</b>	<b>100%</b>

The study results provided in Table 4.16 indicated that disaster response time differs from municipality to municipality. This implied that there is no standardisation. However, the substantial number of municipalities provided disaster response within 6 hours and that is in line with standard operating procedure. The turnaround time is critical to measure the effectiveness of government organisations in holistic manner as suggested by literature: systems theory.

#### **4.3.4.3 What type of accommodation is provided by your organisation, immediately after people have been displaced due to disaster incidents?**

The respondents were asked about the different types of housing assistance provided to affected communities. The large number of 77% respondents indicated that emergency shelter is provided, followed by 12% of respondents indicated that tents are also provided, a total of 11% respondents indicated municipal facilities used for displaced families. There were no responses for other categories. The results indicated a large number of municipalities use temporal shelters as the first rapid response intervention, followed by tents and lastly municipal facilities.



**Figure 4.12: Type of housing assistance provided by your organisation, immediately after displacement occurred**

Figure 4.12 shown a substantial number of municipalities provided temporal shelter to affected communities. The results indicated that municipalities make budget provision for temporal shelters regardless the issue of competence highlighted in Figure 4.12.

#### **4.3.4.4 Comments on the effectiveness of disaster relief measures provided by municipalities or government departments**

Based on the qualitative data collected, the comments are summarised as: “Emergency shelters provided are effective but in some cases not sufficient, depending on the number of family members per households.” (Respondent No 04, between 41-50, 18 July 2020). “The intervention is effective however still require some improvement.” (Respondent No 05, between 31-40, 18 July 2020). “The emergency housing provided is adequate and effective but there is a need to improve the turnaround time for permanent solution”. (Respondent No 27, between 41-50, 21 July 2020). “When people are homeless these interventions really assist to provide shelter as well as protect their belongings.” (Respondent No 13, between 41-50, 21 July 2020).

#### **4.3.4.5 Do you think emergency housing interventions are effectively addressing the needs of the affected communities?**

The research asked the respondents whether emergency housing interventions are addressing the needs of the affected communities. 46% of respondents strongly agreed with the statement, followed by 39% of respondents agreed, only 15% of

respondents disagreed with the statement. There were no responses for other categories. The substantial number of municipalities thinks that emergency housing interventions are effectively addressing the housing needs of affected communities. A fewer number of municipalities think emergency housing interventions do not address housing needs. This means that a large number of municipalities within the Province have prioritised the responsibility of disaster response and recovery.

#### **4.3.4.6 Comments on the effectiveness of post-disaster housing interventions**

Based on the qualitative data collected, one of respondents stated that: “It assists destitute families affected by disaster to avoid the situation to become worst off.” (Respondent No 05, between 31-40, 18 July 2020). “It is effective when it is done immediately after people have been displaced, sometimes effectiveness is compromised by poor quality of goods provided to the victims.” (Respondent No 03, above 50, 15 July 2020). “Other avenues of providing formal shelter should be looked at by the government such as the municipalities should be given that mandate.” (Respondent No 02, between 41-50, 15 July 2020). “They help a lot, however more budget needs to be in place and transparency and fairness needs to play when issuing these on the ground, sometimes politics come to play.” (Respondent No 08, between 31-40, 15 July 2020).

#### **4.3.4.7 Do you think the community has a significant role to play during post-disaster rehabilitation and reconstruction phase?**

The participants of the study were asked about their views on the significant role to be played by the community during post-disaster housing reconstruction. Figure 4.20, 100% of respondents indicated anonymously that the community has a significant role to play during post-disaster phase. The results of the study are synonymous to what Disaster Management Act (Republic of South Africa 2002) is promoting. The Act put emphasis on community participation in disaster management. The results also affirmed the validity of findings from affected communities which places the role of communities at the centre of post-disaster housing rehabilitation and reconstruction. Jha *et al.*, (2010) emphasised that the communities must play a critical role in all stages of disaster management cycle which include response and recovery.

#### **4.3.4.8 Comment on the feedback received from the affected community post-disaster housing rehabilitation and reconstruction.**

Government and agencies should provide feedback to the community to build trust and ensure accountability (Steinberg, 2007). Qualitative information received and coded thematically, some of respondents stated that: “Communities welcome and appreciate assistance from government however it takes a long time to get assistance.” (Respondent No 06, between 31-40, 19 July 2020). “Community leaders should be involved in these projects to ensure proper monitoring is conducted”. (Respondent No 07, between 41-50, 19 July 2020). “The rehabilitation is for the community and open communication on the intentions of the government or any other stakeholder. The community is a group of individuals with their needs and ideas and should be included in anything that concerns them.” (Respondent No 02, above 50, 19 July 2020). “Most people on the ground complain about the time it takes for rehabilitation and reconstruction to take place.” (Respondent No 13, between 41-50, 21 July 2020).

#### **4.3.5 Section E: Challenges faced in post-disaster housing rehabilitation and reconstruction**

The section discusses challenges in post-disaster housing rehabilitation and reconstruction. The main aim of this section is to understand what could be operational challenges experienced by disaster management practitioners during the post disaster recovery phase.

##### **4.3.5.1 Is the project implementation process closely monitored by municipalities and affected sector?**

The participants were asked about whether the project implementation process was being monitored closely by municipalities and affected sectors. As outlined in Table 4.17, 54% of respondents disagreed with the statement, 23% of respondents agreed, 23% of respondents had no opinion. There were no responses for other categories. The study revealed that disaster management practitioners believe that the implementation of post-disaster housing reconstruction is not closely monitored or undertaken by affected municipalities. (See Table 4.17)

**Table 4.17: Is the project implementation process closely monitored by municipalities and affected sector?**

Is the project implementation process closely monitored by municipalities and affected sector?	Frequency	Percentage
Strongly disagree	0	-
Disagree	14	54%
No Opinion	6	23%
Agree	6	23%
Strongly agree	0	-
<b>Total</b>	<b>26</b>	<b>100%</b>

Table 4.17 indicated that monitoring of project implementation is not fully supported or undertaken by affected municipalities and Department of Human Settlements. Poor communication, limited capacity, lack of adherence to disaster response and recovery protocols during the implementation contribute to poor projects monitoring.

#### **4.3.5.2 What mechanisms are currently used to monitor the implementation of housing recovery projects by Human Settlements?**

Respondents were asked about their views on mechanisms used to monitor implementation of housing recovery projects by the Department of Human Settlements. Table 4.18, 35% of respondents stated site visits, 31% of respondents stated contractors' reports, 19% stated sector/stakeholder reports and 15% stated regular reports. The results revealed that the majority of applicable mechanisms are implemented, but there is believe that projects on the ground are not closely monitored. (See Table 4.18)

**Table 4.18: Mechanisms to monitor the implementation of housing recovery**

Mechanisms are currently used to monitor the implementation of housing recovery projects by Human Settlements	Frequency	Percentage
Field/Site visits	9	35%
Contractors' Reports	8	31%
Sector/Stakeholder Reports	5	19%
Regular Reports	4	15%
<b>Total</b>	<b>26</b>	<b>100%</b>

Table 4.18 indicated that disaster management practitioners are aware of monitoring mechanisms. However, there were different views which suggested that mechanisms are in existence but proper implementation and regular reporting by key stakeholders remains a challenge.

#### **4.3.5.3 Do you think these monitoring mechanisms are effective?**

This question was included to establish whether mechanisms for monitoring the implementation of post-disaster housing recovery projects are effective. The question is based on experience and knowledge of participants in the sector. A fair number of participants 58% support the statement. However, it is important to recognize that 42% of participants stated that mechanisms are not effective. This implied that reasonable number think that monitoring mechanisms are effective and a less number think that monitoring mechanisms are not effective. The study results indicated non-compliance with the legislation. “The Disaster Management Act and National Policy Framework calls for development and implementation of monitoring systems for effective coordination of disaster management”.

#### **4.3.5.4 Comments on mechanisms to monitor the implementation of housing recovery**

As per qualitative data collected, one of the respondents stated that: “They don’t follow-up with appointed Service Provider; they rely on disaster management officials to do their jobs.” (Respondent No 4, between 41-50, 08 June 2020). “The Department of Human Settlements need to be more hands on in ensuring that success of the projects”. (Respondent No 6, between 31-40, 08 June 2020). “Yes they are effective although there is no close monitoring of projects by Department of Human Settlements. Improve communication between contractors, Department and stakeholders involved.” (Respondent No 9, between 31-40 18 July 2020). “The Department does not apprise disaster management centres when providing recovery projects so it is difficult to monitor the effectiveness.” (Respondent No 2, above 50, 15 July 2020).

#### **4.3.5.5 Do you think communication protocol for post-disaster housing recovery between the Department of Human Settlements, PDMC, disaster management practitioners and affected communities is effective?**

Respondents were asked about their views on communication protocols for post-disaster housing recovery between critical stakeholders. The majority of respondents 42% indicated communication is not effective, a total of 42% of respondents indicated that they are partially effective and 16% of respondents said they are very effective. The large number of disaster management practitioners was of the view that

communication protocols are not effective and others think they are partially effective. This implied that communication protocols are not being followed properly between municipalities and Department of Human Settlements. (See Table 4.19)

**Table 4.19: Communication protocol for post-disaster housing recovery between critical stakeholders**

<b>Do you think communication protocol for post-disaster housing recovery between the Department of Human Settlements, PDMC, disaster management practitioners and affected communities is effective</b>	<b>Frequency</b>	<b>Percentage</b>
Not Effective	11	42%
Partially Effective	11	42%
Very Effective	4	16%
<b>Total</b>	<b>26</b>	<b>100%</b>

Table 4.19 indicated that a substantial number of disaster management practitioners think that communication protocols are not effective. This area requires urgent attention, further recommendations and remedial action.

#### **4.3.5.6 If not effective or partially effective, what can be done to improve the situation?**

Qualitative information received and coded, some of respondents stated that: “Ward Councillors should form part of the post-disaster management recovery committee for the benefit of the community because most cases communities are not updated.” (Respondent No 9, between 41-50, 18 July 2020). “Well communicated programs and protocols must be followed adequately. This will assist in getting leadership and community buy-in.” (Respondent No 6, between 31-40, 18 July 2020). “The interventions are provided through the appointed provincial or district technical experts to play an oversight role and project management role such engineering. (Respondent No 17, between 41-50, 24 July 2020). “There should be more involvement of disaster management practitioners and affected communities.” (Respondent No 4, above 50, 18 July 2020). “Municipalities and affected sector should be involved in the project implementation processes.” (Respondent No 8, between 41-50, 18 July 2020). “There is a need to improve communication protocol between the department, disaster management practitioners and affected communities.” (Respondent No 9, between 41-50, 18 July 2020).

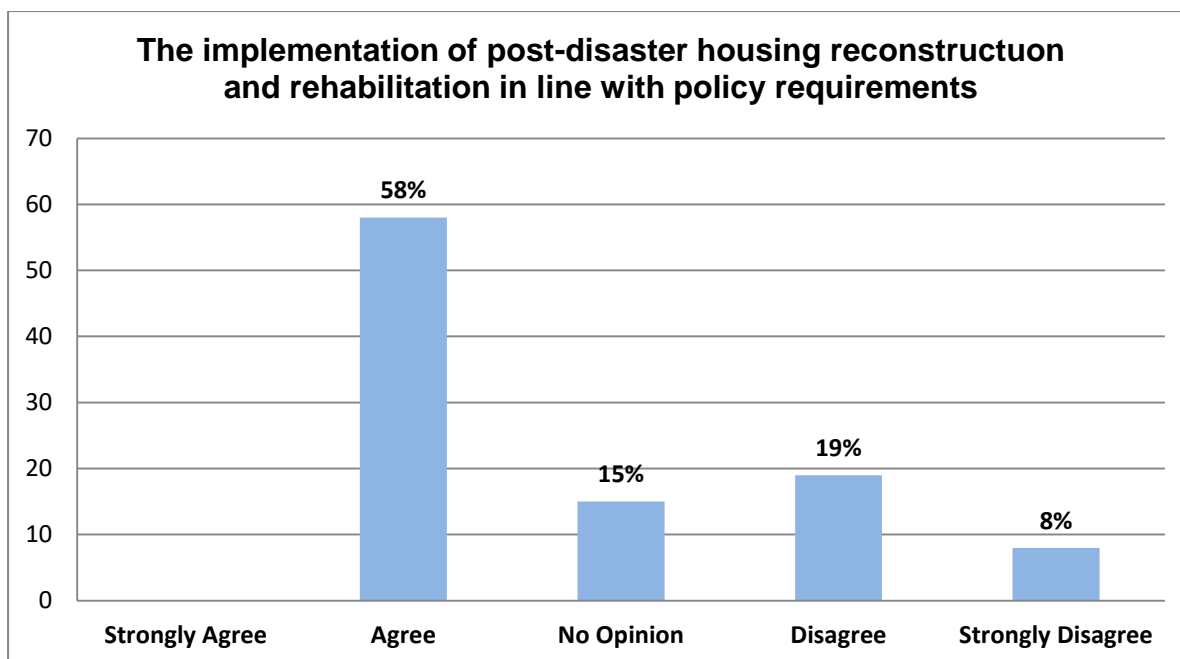


#### **4.3.5.7 Comments on the quality of houses built through post-disaster housing reconstruction?**

Respondents stated that: “There are very poor because there is no building inspector to check from the start, service providers save money but poor materials.” (Respondent No 21, between 31-40, 18 July 2020). “The Department of Human Settlements is building emergency housing which is of poor quality, they look like prefabs, but they cost about R 65 000.00 per unit. There is no difference between building an RDP house and a poor quality emergency house.” (Respondent No 11, between 41-50, 15 July 2020). UNDRO (1982) and Johnson (2007) state that the costs of these temporary structures are usually high. This is considered by authors as a waste of limited funds owing to the relation between the great investments needed to buy them and their short lifespan, since the cost of a temporary shelter can be the same as a permanent house (UNDRO, 1982) & (Johnson 2007).

#### **4.3.5.8 Is the Department of Human Settlements implementing post-disaster housing reconstruction projects in line with policy requirements?**

The question was asked to establish whether the Department is implementing post-disaster housing reconstruction projects in line with policy requirements. Figure 4.13 58% of respondents agreed, a total of 15% respondents had no opinion, 19% of respondents disagreed and 8% of respondents strongly disagreed. There was no response for strongly agree category. A large number of disaster management practitioners think that the Department of Human Settlements is implementing post-disaster housing rehabilitation and reconstruction in line with policy requirements. (See Figure 4.13)



**Figure 4.13: Implementation of post-disaster reconstruction in line with policy requirements**

As indicated in Figure 4.13, the results shown that the Department is executing its legislative mandate of providing access to housing assistance to affected communities as prescribed by the Constitution, National Housing Act and other related pieces of legislation.

#### **4.3.5.9 Comment on challenges experienced in the implementation of post-disaster housing rehabilitation and reconstruction programs?**

As indicated by qualitative data collected some comments are captured as follows: "Relevant stakeholders shift their responsibilities to others. Meeting are being attended by junior officials not by decision makers." (Respondent No 05, between 41-50, 15 July 2020). "There delays with the implementation of the programme and you find that beneficiaries have built their own houses." (Respondent No 07, between 41-50, 15 July 2020). "I think public consultation is the key, so that communities and their local leaders would understand intentions of the project." (Respondent No 09, between 31-40, 15 July 2020). "There is a lack of communication between the Department of Human Settlements, Service Providers, and community. High expectations by the community members. Disaster Management Centres receive complaints from community members complaining about the lists, complaining about disaster management practitioners did not conduct assessment thoroughly and saying they were affected by left behind." (Respondent No 11, between 41-50, 15 July 2020).

#### **4.3.5.10 Provide recommendations to overcome the challenges identified in your response above**

Based on the qualitative data recorded, some comments of respondents were as follows: “Invitation to top management stakeholders to take decisions and account. Each stakeholder must do their responsibility.” (Respondent No 07, between 41-50, 15 July 2020) “Improve turnaround time and have constant stakeholder engagement.” (Respondent No 02, between 31-40, 15 July 2020). “A new unit to deal with post-disaster housing reconstruction should be established with protocols and clear service delivery guidelines.” (Respondent No 11, between 31-40, 15 July 2020). “Political interference, interference by business forums, community protest.” (Respondent No 13, above 50, 15 July 2020). Good working relationship amongst responsible Departments and Councillors.” (Respondent No 06, between 41-50, 15 July 2020).

#### **4.3.6 Section F: Guiding framework for post-disaster housing reconstruction: Disaster Management Practitioners**

This section gives an overview on the views and perspectives of disaster management practitioners about a guiding framework for post-disaster housing reconstruction. The main purpose is to understand different opinions about the proposed framework and what important elements should be considered.

##### **4.3.6.1 Is there a framework that guides post-disaster housing rehabilitation and reconstruction in KZN?**

The respondents were asked about their knowledge of a policy that guides post-disaster housing rehabilitation and reconstruction. As reflected in Table 4.20, a total of 58% respondents stated that they were not aware of any policy framework and 42% respondents were aware of policy frameworks inclusive of post-disaster housing reconstruction. This implied that some officials are not aware of any existing framework that guides post-disaster housing reconstruction. A development of a standardised framework has been called for to ensure uniform approach for delivery of post-disaster housing reconstruction. (See Table 4.20)

**Table 4.20: Framework that guides post-disaster housing reconstruction**

<b>Is there a framework that guides post-disaster housing rehabilitation and reconstruction in KZN?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	11	42%
No	15	58%
<b>Total</b>	<b>26</b>	<b>100%</b>

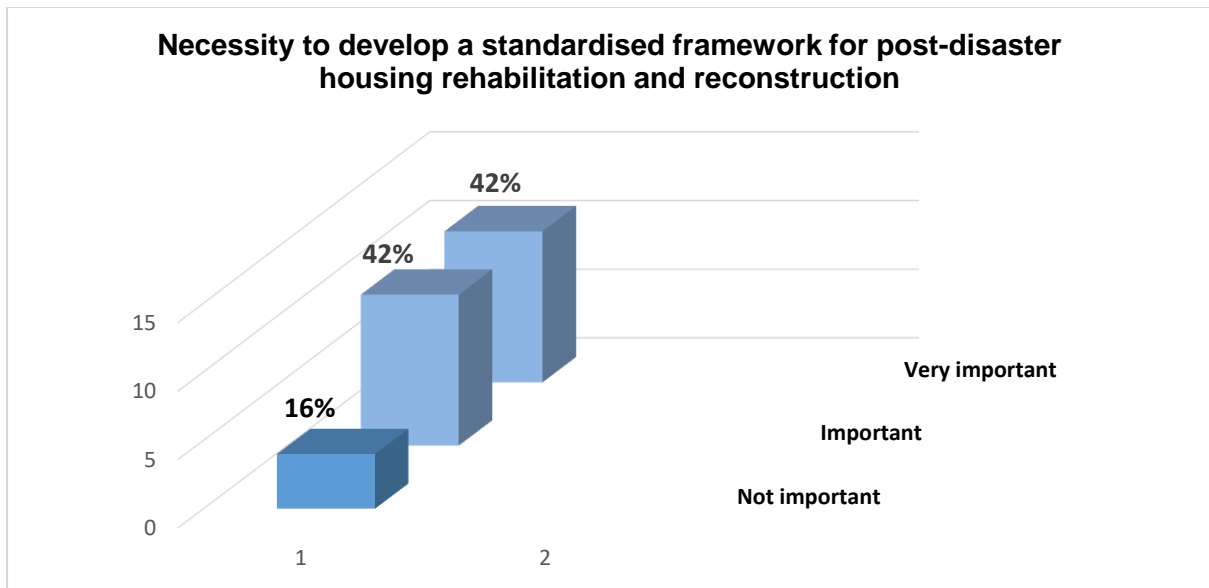
Table 4.20 illustrated that some of disaster management practitioners are not aware of any existing framework for post-disaster housing reconstruction. This implied that there is a great need to introduce a standardised framework guiding post-disaster housing reconstruction.

#### **4.3.6.2 Comment on the importance of a guiding framework for post-disaster housing reconstruction**

Based on qualitative data, some of the comments are captured as follows: “It will assist on quick response, it will save time and money, it will solve ward protects, it will guide stakeholders who is responsible for what.” (Respondent No 07, between 31-40, 15 July 2020). “To improve the implementation and have standardised disaster housing framework.” (Respondent No 08, between 41-50, 15 July 2020). “The guiding framework is very important because it will gave guidance on construction of post-disaster housing.” (Respondent No 11, between 41-50, 15 July 2020).

#### **4.3.6.3 If No, do you think it is essential for the Province to have a standardised framework for post-disaster housing rehabilitation and reconstruction?**

The question was asked to establish whether it is essential for the Province to have a standardised framework for post-disaster housing rehabilitation and reconstruction. As outlined in Figure 4.14, a fair number of respondents 42% indicated that it is very important, followed by 42% of respondents who stated that it is important and 16% of respondents stated that it is not important. The addition of very important and important score gives a total sum of 84% of participants. This implied that a large number of participants think developing a guiding framework for post-disaster housing reconstruction is important. (See Figure 4.14)



**Figure 4.14: Standardised framework for post-disaster housing rehabilitation and reconstruction**

Figure 4.14 shown a fair number of respondents confirmed that it is essential to have a framework for post-disaster housing reconstruction. Therefore, there is a great need to develop a guiding framework for post-disaster housing reconstruction.

#### **4.3.6.4 Do you think it is necessary for municipalities to develop policies responding to emergency housing as part of contingency planning?**

The participants of the study were asked about their views on the necessity for municipalities to develop policies responding to emergency housing as part of contingency planning. There is unanimity amongst the participants, as reflected in Table 4.21, 100% indicated anonymously that it is necessary for municipalities to develop policies responding to emergency housing. This implied that a large number of officials are the view that municipalities should develop policies responding to emergency housing which is contrary to the views and perceptions that emergency housing is only a legal responsibility of the Department of Human Settlements. (See Table 4.21)

**Table 4.21: Do you think it is necessary for municipalities to develop policies responding to emergency housing as part of contingency planning?**

<b>Do you think it is necessary for municipalities to develop policies responding to emergency housing as part of contingency planning?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	26	100%
No	0	-
<b>Total</b>	<b>26</b>	<b>100%</b>

As reflected in Table 4.21 shown that there is a need for municipalities to develop policies responding to emergency housing as part of contingency planning.

#### **4.3.7 Summary analysis of research results: Disaster Management officials**

In terms of disaster management officials, the sections were also subdivided into similar thematic areas. However, the questions are different in terms of area of expertise of the target population. The themes are as follows: Demographics of participants, disaster management legislative and policy framework implemented during post-disaster housing rehabilitation and reconstruction, the impact of disaster funding on the living conditions of the affected communities during post-disaster phase, provision of government response and recovery measures, challenges in post-disaster housing reconstruction and guiding framework for post-disaster housing reconstruction. The demographics indicators of respondents were recorded: age group, position, experience and highest qualification. The respondents' demographic are essential to the validity, integrity and dependability of the information gathered, mainly the work experience, education level and level of responsibility. The highly educated respondents had vast experience providing rich and valid data for the study.

The study indicated that a large number of respondents had not established focal persons or focal points to coordinate post-disaster housing interventions. Disaster management plans had been developed by all municipalities as required by Disaster Management Act. However, the plan was not inclusive of post-disaster housing and emergency housing issues. Furthermore, municipalities have developed policies but these policies are not inclusive of emergency housing issues.

The results also revealed that municipalities do not make adequate budget provision for finance emergency housing recovery because the function is not a local government competency and they also believe funding has directly impact on effective

delivery of post-disaster housing reconstruction. The study revealed that disaster relief material and emergency shelter is provided to affected communities. The temporal shelters provision was commended. However, the issue of turnaround time that takes longer in some instances was raised as challenge. The results revealed that post-disaster housing projects are not closely monitored. There is poor communication during implementation. Communication protocols should be improved between key stakeholders. The study revealed that the majority of respondents believed that development of a guiding framework is very important and it should assist with a standardised and uniform approach towards post-disaster housing reconstruction.

#### **4.4 ANALYSIS OF RESEARCH RESULTS: OFFICIALS FROM KZN DEPARTMENT OF HUMAN SETTLEMENTS**

The data analysis displays responses to interview questions from officials from the Department of Human Settlements (Chief Director, Director, Deputy Directors and Project Officers) assigned with the responsibility to coordinate disaster housing interventions in the Province. The structured interviews were employed wherein interviews were conducted as information collection techniques in order to gain a detailed picture of participants' beliefs and perceptions. The sampling population consisted of eight respondents and eight interviews were conducted successfully giving a response rate of 100%.

##### **4.4.1 Biographical Data**

This section gives an overview of demographic profile of the respondents which includes: age group, current position in the field of disaster management, period of service, level of education and experience in post-disaster housing reconstruction. The main purpose is to understand and get in-depth knowledge from experienced officials from the Department of Human Settlements.

###### **4.4.1.1 Age Group**

The respondents were asked to indicate age group. As reflected in Table 4.23, the majority of 50% respondents were 41 - 50 years, followed by 51 years and above and the least being 12% representing 31 – 40 years. It is evident that the high number of respondents are in the middle age between 31 – 50 years. The results indicated that the majority of officials from the Department of Human Settlements are mature and

this is translated into vast experience with high level of expertise in the field. (See Table 4.23)

**Table 4.23: Age Group**

Age	Frequency	Percentage
20 – 30 years	0	-
31 – 40 years	1	12%
41 – 50 years	4	50%
51 above	3	38%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.23 illustrated that identified study population have been in the sector for a longer period of time. This is outstanding for the study to collect accurate, relevant and reliable information for the study.

#### **4.4.1.2 Current Position in the Department of Human Settlements**

Respondents were asked to indicate their current positions in their current organisations. The research results indicated that the majority of respondents are in middle and senior management. As indicated in Table 4.23, 37% of respondents were Deputy Directors, followed by 25% of respondents were Directors, 13% of Chief Directors and 25% respondent of Project Officers. The research revealed that officials from the Department of Human Settlements work with post-disaster housing reconstruction on daily basis and they are highly competent and efficient. (See Table 4.23)

**Table 4:23 Position in the Department of Human Settlements**

Position	Frequency	Percentage
Project Officer	2	25%
Assistant Director	0	0%
Deputy Director	3	37%
Director	2	25%
Chief Director and above	1	13%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.23 gave an overview of the results and illustrated that there is diversity among respondents in the form of their occupations which provides rich and valid data for the study.



#### 4.4.1.3 Period of Service

Respondents were asked about years of experience in disaster management. The period of service is important in any field of work as this signifies the level of competence and comprehension of the job and its responsibilities. As indicated in Table 4.24, the years of experience ranged from 1 year to 16 years above. The results indicated 38% respondents had 10 – 15 years' experience in disaster management, followed by 37% respondents with 5 – 10 years' experience, 13% respondents had 15 – 20 years, 12% represent 5 -10 years' experience. There was no response for 0% category above 20 years). The majority of respondents had vast experience in the field of disaster management, their expertise and knowledge provided credible information and added value to the study. This is a sign of valid and quality data as a high number of years in a particular field or organisation reflect solid institutional memory. (See Table 4.24)

**Table 4:24 Experience in the Department of Human Settlements**

<b>Period of Service</b>	<b>Frequency</b>	<b>Percentage</b>
1 – 5 years	1	12%
5 – 10 years	3	37%
10 – 15 years	3	38%
15 – 20 years	1	13%
Above 20 years	0	-
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.24 illustrated an industrial and value of experience within officials from Department of Human Settlements which makes the content of the study to be rich and trustworthy.

#### 4.4.1.4 Level of Education

The results show that 38% of participants have post-graduate qualifications, while 37% of participants had bachelor's degree qualifications and 25% of participants had diploma. It is noteworthy that all respondents have been exposed to some certain level of education ranging from a Diploma to an Honours or Post Graduate Diploma level. The results showed that the number of participants who received higher tertiary education may be prepared to contribute their knowledge, views and perceptions can be viewed as important to build body of knowledge in disaster management. The large number of respondents were highly educated. The level of education is a significant

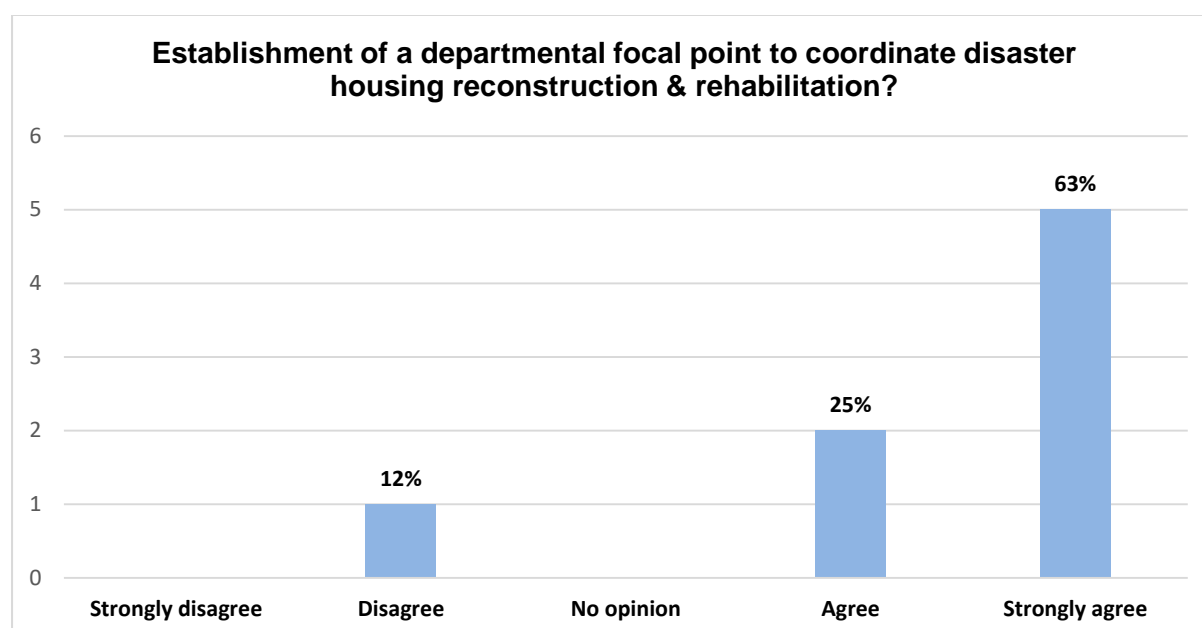
indicator of competence and ability to comprehend post-disaster housing rehabilitation and reconstruction

#### **4.4.2 Disaster management policies & legal frameworks implemented during post-disaster housing rehabilitation and reconstruction**

This section gives an overview of research results on disaster management policies and legal frameworks for post-disaster housing rehabilitation and reconstruction. It is important to understand existing disaster related policies and the Department of Human Settlements implement these policies and to assess any policy gaps in these policies for provision of response to the needs of affected communities.

##### **4.4.2.1 Is it necessary for the department to establish a focal point to coordinate disaster housing rehabilitation and reconstruction?**

The question was asked whether the Department of Human Settlements has a dedicated focal point to deal with post-disaster housing reconstruction. In Figure 4.15, the results indicated that the majority 63% of respondents strongly agreed with the statement, a total of 25% of respondents agreed, a total of 12% of respondents disagreed with the statement. There were no responses for no opinion and strongly disagree categories. A large number of officials think that it is important for the Department of Human Settlements to establish a focal post to coordinate post-disaster housing reconstruction. (See Figure 4.15)



**Figure 4.15: Establishment of a focal point to coordinate disaster housing reconstruction**

Figure 4.15 shown that the Department has established institutional capacity which includes focal points and appointment of dedicated persons is critical in discharging the responsibility of effective coordination and delivery of post-disaster housing reconstruction.

#### **4.4.2.2 Has your department established a dedicated disaster management unit to deal with post-disaster housing rehabilitation and reconstruction projects?**

The respondents were asked whether the department has established a dedicated disaster management unit to deal with post-disaster housing rehabilitation and reconstruction projects. A total of 100% respondents stated that the Department has established dedicated disaster management unit to deal with post-disaster housing rehabilitation and reconstruction. The results indicated that the Department has established a dedicated unit to deal with post disaster housing rehabilitation and reconstruction.

#### **4.4.2.3 If yes, provide comments on functionality of the unit, If no, what are your comments on the establishment of such?**

The summary analysis of qualitative data collected indicated that: “The Department has established a Special Programme Unit responsible for post-disaster housing assistance for disaster affected beneficiaries, with the Emergency Housing intervention and provide the sustainable, safe and quality housing.” (Interviewee No 01, between 41-50, 09 May 2020). “The Department has appointed personnel at a provincial level to coordinate the function, we also have district offices, wherein district managers are also responsible to coordinate and implement post-disaster housing reconstruction. The unit is also responsible for social assistance housing programmes.” (Interviewee No 02, between 41-50, 09 May 2020).

#### **4.4.2.4 Do you think it is essential for the department to develop disaster housing recovery plan for implementation of disaster housing reconstruction projects?**

The question was asked to establish whether it is essential for the Department of Human Settlements to develop disaster housing recovery plan for implementation of post-disaster housing reconstruction projects. As indicated in Table 4.25, the results revealed that the majority 63% of respondents thought it is essential to develop a plan, followed by 25% of respondents who agreed and 12% of respondents disagreed. (0%

represent strongly disagree and 0% represent no opinion). The results confirmed the legislative requirement for the Department of Human Settlements to develop plans for post disaster housing reconstruction. (See Table 4.25)

**Table 4.25: Do you think it is essential for the department to develop disaster housing recovery plan for implementation of disaster housing reconstruction projects**

<b>Do you think it is essential for the department to develop disaster housing recovery plan for implementation of disaster housing reconstruction projects?</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly disagree	0	-
Disagree	1	12%
No Opinion	0	-
Agree	2	25%
Strongly agree	5	63%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.25: The results clearly shown that there is a great significance need for the Department to develop disaster housing recovery plan for effective implementation of post-disaster housing rehabilitation and reconstruction.

#### **4.4.2.5 Does your department have a disaster management plan which incorporates housing recovery strategies?**

The question was to determine whether the Department has developed a disaster management plan which incorporates housing recovery strategies. As reflected in Table 4.26, the results revealed that 88% of respondents were not aware of any plan and only 12% of respondents were aware of the plan. This means that the Department of Human Settlements has developed disaster management plan as required by Section 38 of Disaster Management Act 57 of 2002. The qualitative information received also indicated that high number of respondents stated that disaster management plan is effective. The proper planning for disaster management is critical to ensure preparedness for post-disaster housing recovery. (See Table 4.26)

**Table 4.26: Does your department have a disaster management plan which incorporates housing recovery strategies?**

<b>Does your department have a disaster management plan which incorporates housing recovery strategies?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	1	12%
No	7	88%
<b>Total</b>	<b>8</b>	<b>100%</b>

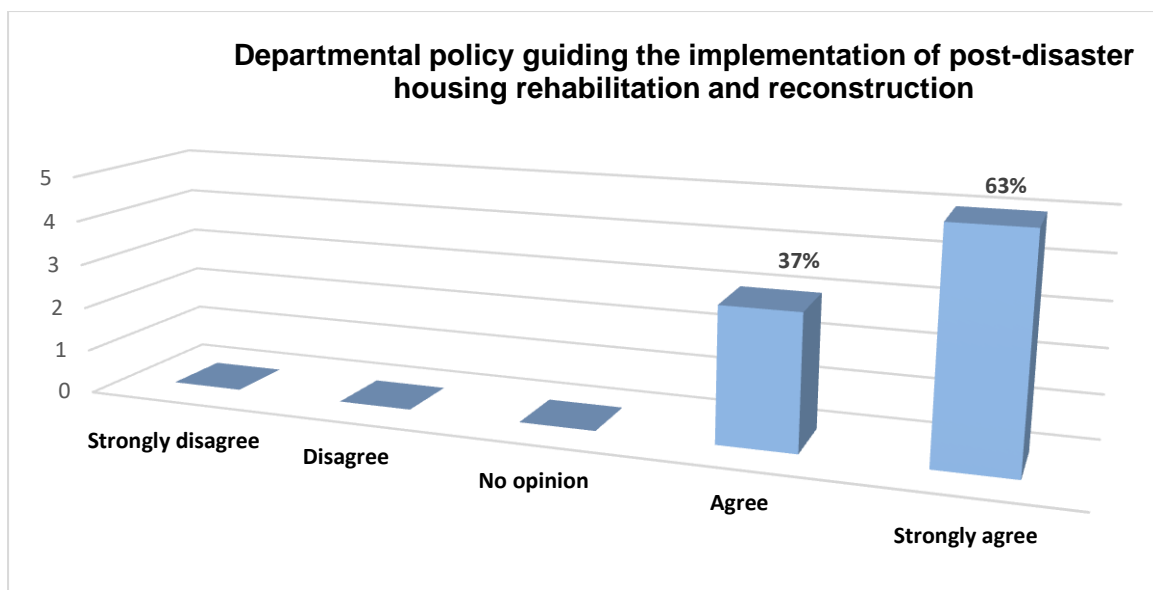
Table 4.26 illustrated that the department has developed a disaster management plan. However, the plan requires adequate resources which include personnel, finances and tools of trade to ensure effective implementation.

#### **4.4.2.6 Does your department have an operational plan to deal with emergency housing for disaster eventualities?**

The respondents were asked whether the department has an operational plan to deal with emergency housing for disaster eventualities. A total of 100% of respondents were aware of an operational plan. The results indicated the state of readiness in terms of standard operating procedures for the Department of Human Settlements to deal with emergency housing for disaster eventualities.

#### **4.4.2.7 Does your department have an internal policy which guides the implementation of disaster housing rehabilitation and reconstruction?**

The question was asked to establish whether the department has an internal policy which guides the implementation of post-disaster housing reconstruction. As indicated in Figure 4.15, a total of 63% of respondents strongly agreed, 37% of respondents agreed with the statement. There were no responses for other categories. The results indicated that the Department has an internal policy dealing with post-disaster housing reconstruction. The qualitative data collected through interviews with officials of Department of Human Settlements further confirmed where one of respondents stated that: "The Internal Disaster Housing Policy it's very helpful and assisting in disaster responding time, assisting those affected beneficiaries and reconstruction of housing units. (Interviewee No 1, between 41-50, 09 May 2020). (See Figure 4.16)



**Figure 4.16: Does your department have an internal policy which guides the implementation of post-disaster housing rehabilitation and reconstruction?**

Figure 4.16 indicated that the Department of Human Settlements has an internal policy dealing with post-disaster housing rehabilitation and reconstruction. The policy could be developed but the implementation remains a challenge.

#### **4.4.2.8 Provide comments on how to improve coordination of disaster housing rehabilitation and reconstruction?**

Qualitative response and data collected during interviews is summarised as follows:

“The Department should implement a data base in the District, for capable service providers who can be able to provide an early response on construction of Emergency housing units.” (Interviewee No 1, between 41-50, 09 May 2020). “The Department has appointed a panel of service providers assigned to specific district to fast track delivery of post-disaster housing reconstruction.” (Interviewee No 4, between 31-40, 15 May 2020). “Emergency shelter programme and supply of building material have been prioritised by Department however the issue is with budget with has limitation in terms of the scope and numbers.” (Interviewee No 3, above 50, 18 May 2020).

#### **4.4.3 The impact of disaster funding on the living conditions of the affected communities during post-disaster phase**

This section gives an overview of the impact of disaster funding of the living conditions of post-disaster affected communities. The main purpose is to assess the legislative role of the Department of Human Settlements, to assess the impact of direct funding for post-disaster housing reconstruction and to test the views of officials from the Department of Human Settlements on the proposed framework for post-disaster housing rehabilitation and reconstruction.

##### **4.4.3.1 In your opinion, does your department make provision in the budget for swift response to disaster housing needs?**

The question asked whether the department makes provision in the budget for swift response to disaster housing needs. As reflected in Table 4.27, a large number of respondents 75% strongly agreed, 25% of respondents also agreed with the statement. There were no responses for other categories. The results revealed that the department is able to make budget for provision of post-disaster housing reconstruction, but it is inadequate to address disaster housing needs. Van Niekerk & Visser (2009) also identified that: “different spheres of government are not fully adhering and applying current legislative framework, institutional and funding mechanisms”. Disaster relief measures and allocation of funds intended for affected communities take longer because of lengthy of bureaucratic processes to be followed by government (Van Niekerk & Visser, 2009). The results also confirmed that literature and empirical results do collaborate with one another towards fulfilment of study objectives. (See Table 4.27)

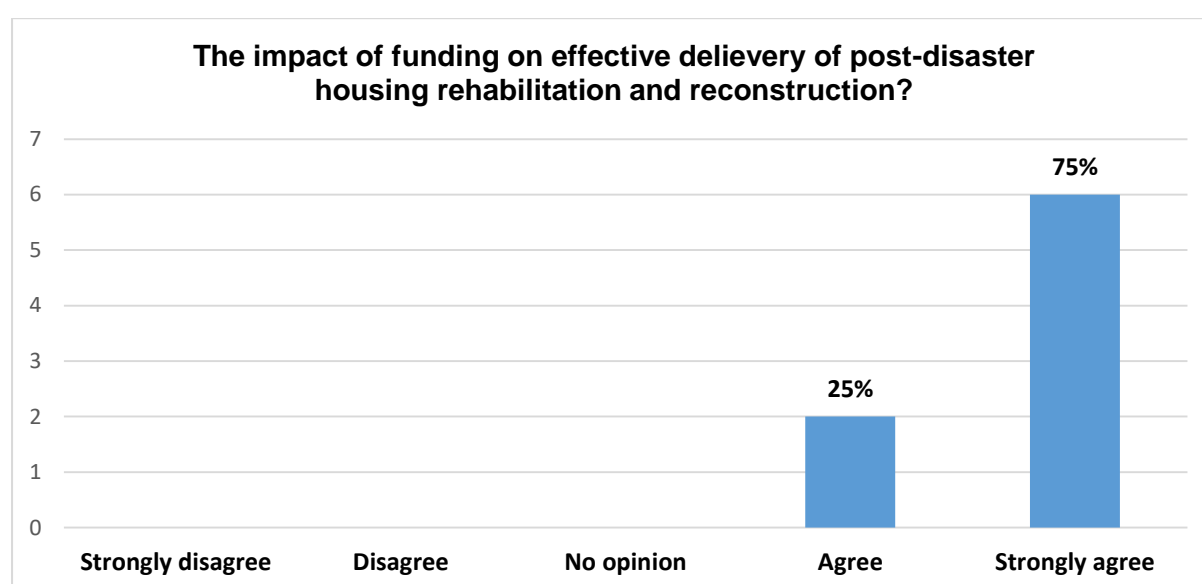
**Table 4.27: In your opinion, does your department make provision in the budget for swift response to disaster housing needs?**

<b>In your opinion, does your department make provision in the budget for swift response to disaster housing needs?</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly disagree	0	-
Disagree	0	-
No Opinion	0	-
Agree	2	25%
Strongly agree	6	75%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.27 shown a substantial number of participants think that budget was allocated by the Department of Human Settlements to deal with response to disaster housing needs. However, the budget allocation was insufficient.

#### 4.4.3.2 Do you think funding has direct impact on effective delivery of post-disaster housing reconstruction?

Respondents were asked whether funding has direct impact on effective delivery of post-disaster housing reconstruction. As indicated in Figure 4.17, the results revealed that 75% of respondents strongly agreed with the statement, 25% of respondents also agreed with the statement. There were no responses for other categories. The literature indicates that post-disaster housing reconstruction is a process which is affected by the availability of financial resources, bureaucratic systems, and social and economic factors (Baradan, 1999 and Patel & Hastek, 2013). The results revealed that the Department of Human Settlements was also affected by funding to deliver post-disaster housing reconstruction optimally.



**Figure 4.17: Do you think funding has direct impact on effective delivery of post-disaster housing reconstruction?**

Figure 4.17 shown that funds were allocated by the Department, however they were not adequate to reach all affected communities, this create backlog of affected communities waiting for housing assistance.



#### **4.4.3.3 Did your department receive rehabilitation and reconstruction funding for 2011/2012 flood disasters from National Treasury?**

The question was asked to establish whether the department receives rehabilitation and reconstruction funding for 2011/12 flood disaster from National Treasury. As outlined in Table 4.28, a total of 100% of respondents agreed and confirmed that the department received funding for post-disaster housing reconstruction. The study revealed that budget allocation was made by National Treasury for declared disasters in 2011/12 financial year. However, the funding allocated could not reach all affected areas to address disaster housing needs in KZN Province. (See Table 4.28)

**Table 4.28: Did your department receive rehabilitation and reconstruction funding for 2011/12 flood disasters from National Treasury**

<b>Did your department receive rehabilitation and reconstruction funding for 2011/2012 flood disasters from National Treasury?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	8	100%
No	0	-
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.28 gave an overview of results which showed that funding was allocated for post-disaster housing reconstruction and rehabilitation.

#### **4.4.3.4 Do you think funding for post-disaster housing rehabilitation and reconstruction was effectively utilised to response to housing needs of affected communities?**

Respondents were asked to establish whether funding for post-disaster housing rehabilitation and reconstruction was effectively utilised to respond to housing needs of affected communities. As outlined in Table 4.29: a total of 100% agreed and confirmed that funding was utilised effectively to respond to housing needs of affected communities. The study revealed that funding was effectively utilised to address housing needs of the affected communities but qualitative responses from interviews indicate that funding was inadequate and could not reach all affected communities. This is also exacerbated by a backlog of post-disaster housing. (See Table 4.29)

**Table 4.29: Do you think funding for post-disaster housing rehabilitation and reconstruction was effectively utilised to response to housing needs of affected communities?**

<b>Do you think funding for post-disaster housing rehabilitation and reconstruction was effectively utilised to response to housing needs of affected communities?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	8	100%
No	0	0%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.29 illustrated that funds were effectively utilised to respond to housing needs of the affected communities, however not all affected communities received assistance.

#### **4.4.3.5 What is your view on current national funding model for post-disaster housing rehabilitation and reconstruction?**

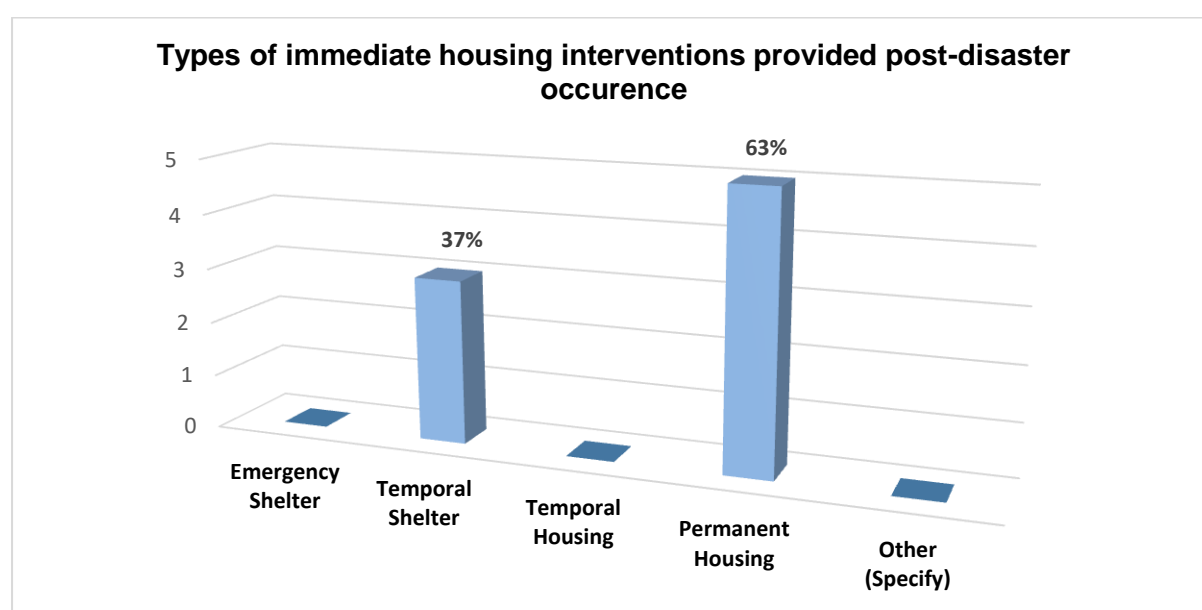
The respondent stated that: “The Department of Human Settlements is highly dependent on National Treasury and National Disaster Management Centre for funding of post-disaster housing rehabilitation and reconstruction. The funding model need to change and funding should be released quicker to the Departments in order for us to expedite the housing delivery to the affected communities. National takes its own time to approve allocations for disaster funding. Therefore verification of damages should be done immediately whilst the impact of disasters is still visible and funding approval should be quicker as well to enable the line departments to fast track implementation.” (Interviewee No 5, between 41-50, 18 May 2020). One of the respondents stated that: “Our Department does not have adequate disaster budget, so we only apply through National Department for funding once the disaster has been occurred in the districts or areas.” (Interviewee No 3, between 41-50, 18 May 2020).

#### **4.4.4 How government provide response and recovery measures for disaster affected communities?**

This section gives an overview of government response and recovery measures provided to disaster affected communities. The main objective is to assess types of disaster responses and recovery interventions and how these were provided in terms of turnaround time. This assisted the researcher to determine effectiveness of standard operating procedures and whether housing assistance for affected communities is provided in line with international standards.

#### 4.4.4.1 What type of housing interventions are provided by your department, immediately after disaster has occurred?

Respondents were asked about the type of housing interventions provided by the department, immediately after disaster has occurred. As outlined in Figure 4.18: A large number of respondents 63% confirmed that the Department provide permanent houses, 37% of respondents stated the Department provides temporal shelter to the affected communities. There were no responses for other categories. The study showed that the Department caters for only permanent housing and temporal shelters. This is also supported by legislation and literature. The Department of Human Settlements has a legal responsibility to provide housing assistance to affected communities in a form of temporal housing and permanent housing (KZN-DHS, 2012). The Sphere Project (2018) emphasises that the State has an obligation to ensure that all vulnerable groups affected by disasters have access to adequate housing (The Sphere Project, 2018). (See Figure 4.18)



**Figure 4.18: What type of housing interventions are provided by your department, immediately after disaster has occurred?**

Figure 4.18 gave an overview of research results which showed post-disaster housing interventions provided by the State. These interventions are recognised as humanitarian assistance received to ensure that human suffering is minimised as suggested by (The Sphere Project, 2018). Therefore, the timely provision of shelter and settlement support can save lives in the initial stages of a crisis (The Sphere Project, 2018).

#### 4.4.4.2 As selected from above interventions, what is the standard turnaround time for temporal shelter?

The respondents were asked about the standard turnaround time for temporal shelter. As outlined in Table 4.30, 50% of respondents indicated that it took 12 months to provide temporal shelter to disaster affected communities. 25% of respondents indicated six (6) months, 25% of respondents indicated three (3) months respectively. There were no responses for other categories. The study results indicated that emergency shelter is not always provided within the shortest periods of time. Literature reviewed suggests that temporal shelters should be provided within a turnaround time of one to two days. (See Table 4.30)

**Table 4.30 Temporal Shelter interventions and turnaround time**

Temporal Shelter		
Turnaround Time	Frequency	Percentage
6 hrs	0	-
7hrs	0	-
12hrs	0	-
24hrs	0	-
72hrs	0	-
5 days	0	-
30 days	0	-
3 months	2	25%
6 months	2	25%
12 months	4	50%
24 months	0	-
Above 24 months	0	-
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.30 gave an overview of results which indicated that a large number of respondents indicated that the turnaround time for provision temporal shelter takes between 3 to 24 months. Therefore, it is evident that such interventions do not have a turnaround time; there are systematic challenges to ensure rapid response of temporal shelters to affected communities. Quarantelli (1995) and Johnson (2007) describes four stages or types of housing assistance, authors indicated that temporal shelters should be provided within a day or two days to protect dignity of affected communities.

#### 4.4.4.3 As selected from above interventions, what is the standard turnaround time for Permanent Housing?

The respondents were asked about the standard turnaround time for permanent housing. As reflected in Figure 4.31, 75% of respondents indicated that above (24) months was taken to provide permanent housing to disaster affected communities and 25% of respondents indicated (24) months to provide permanent housing to affected communities. There were no responses for other categories. The results of the study indicated that permanent housing solutions take longer than anticipated. It can take 2 years and more than 2 years to make provision for a permanent solution to the affected communities. Cosgrave (2008) affirms that one of the challenges of post-disaster housing reconstruction is the prolonged process in some developed countries to deliver housing assistance to displaced families within a shortest possible time. Contrary to the literature presented by Cosgrave, it is critical to assess this from a bird's eye view and from all angles (Vihanvati & Mulligan, 2017) argue that the process may be longer to normalise the situation. However, the effectiveness should be measured in terms of the outcomes rather than processes. They further state that funding, quality and time factor become critical features of project management to assess effectiveness of any programme. As illustrated by empirical findings and literature, there is evidence that the effectiveness of post-disaster housing reconstruction is a challenge. (See Table 4.31)

**Table 4.31: Provision of permanent housing interventions and turnaround time**

Permanent Housing		
Turnaround Time	Frequency	Percentage
6 hrs	0	-
7hrs	0	-
12hrs	0	-
24hrs	0	-
72hrs	0	-
5 days	0	-
30 days	0	-
3 months	0	-
6 months	0	-
12 months	0	-
24 months	2	25%
Above 24 months	6	75%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.31 illustrated that post- disaster housing is provided but it takes longer for affected communities to receive assistance. Triangulation of results from communities,

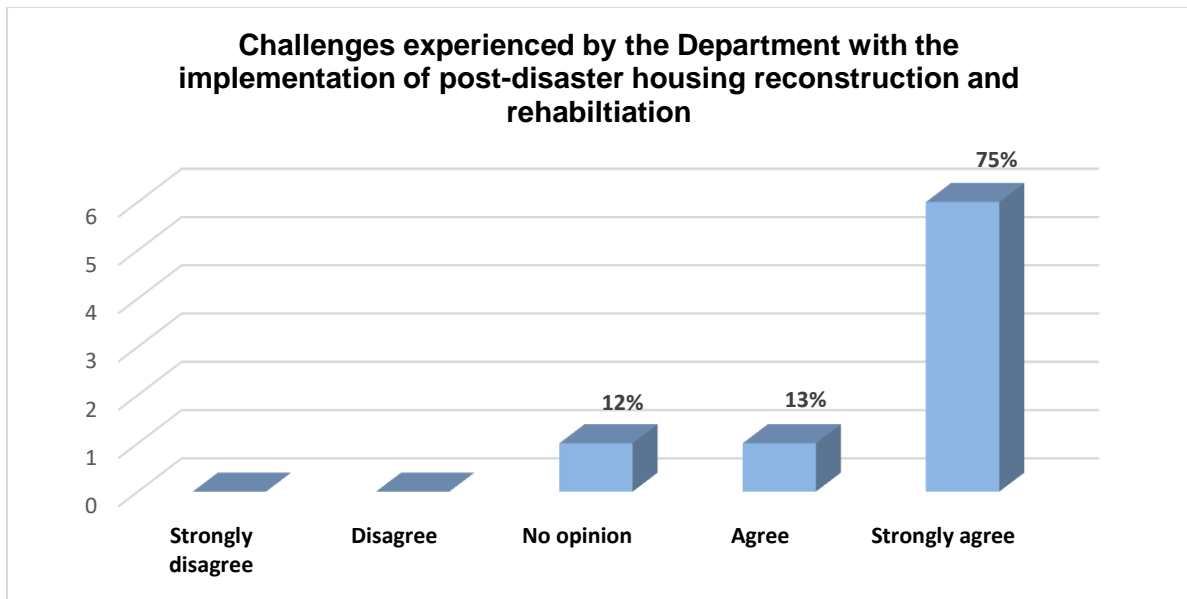
disaster management practitioners and officials from the Department of Human Settlements also show that turnaround time is a common challenge. This is caused by the fragmented and disjuncture of management system of post-disaster housing rehabilitation and reconstruction.

#### **4.4.4.4 In your opinion, do you think disaster housing interventions are effectively addressing the needs of the affected communities?**

The respondents were asked the question to establish whether disaster housing interventions are effectively addressing the needs of the affected communities. The results indicated that large number of respondents 62% disagreed with the statement and 38% of respondents strongly agreed with the statement. There were no responses for other categories. The results indicated that disaster housing interventions are not fully effective in addressing the needs of the affected communities. This has been supported literature reviewed, legislation and empirical findings. The Act places the onus for rehabilitation and reconstruction of infrastructure to the organ of state responsible for maintaining such infrastructure (Republic of South Africa, 2003).

#### **4.4.4.5 Is your department experiencing challenges with implementation of post-disaster housing reconstruction?**

This question was asked to establish whether the department is experiencing challenges with the implementation of post-disaster housing reconstruction. As outlined in Figure 4.19, 75% of respondents strongly agreed with the statement, a total of 13% respondents agreed with the statement and 12% of respondents had no opinion. There were no responses for other categories. The results revealed that Department of Human Settlements has challenges with the implementation of post-disaster housing reconstruction. The major challenges emanate from issues such as adequate funding, lack of dedicated unit dealing with post-disaster housing reconstruction. (See Figure 4.19)



**Figure 4.19: Is your department experiencing challenges with implementation of post-disaster housing reconstruction?**

Figure 4.19: shown a substantial number of participants stated that the Department of Human Settlements have the implementation challenges of the programme. These results corroborated with research findings from the community where the level of satisfaction was rated low and sited snail pace system in terms of responding to housing needs of affected communities.

#### **4.4.4.6 Is the Department of Human Settlements implementing disaster rehabilitation and reconstruction projects in line with policy requirements?**

The respondents were asked whether the Department of Human Settlements implementing disaster rehabilitation and reconstruction is in line with policy requirements. As reflected in Table 4.32, 75% of respondents strongly agreed and 25% of respondents agreed with the statement. There were no responses for other categories. The results implied that the Department is executing its role and responsibilities as outlined by the legislation. The sector departments are required by the Disaster Management Act to develop contingency strategies and emergency procedures in the event of a disaster, including measures to finance those strategies (Republic of South Africa, 2002). The Department of Human Settlements has a legal responsibility to provide housing assistance to affected communities in a form of temporal housing and permanent housing (KZN-DHS, 2012). (See Table 4.32)

**Table 4.32: Is the Department of Human Settlements implementing disaster rehabilitation and reconstruction projects in line with policy requirements?**

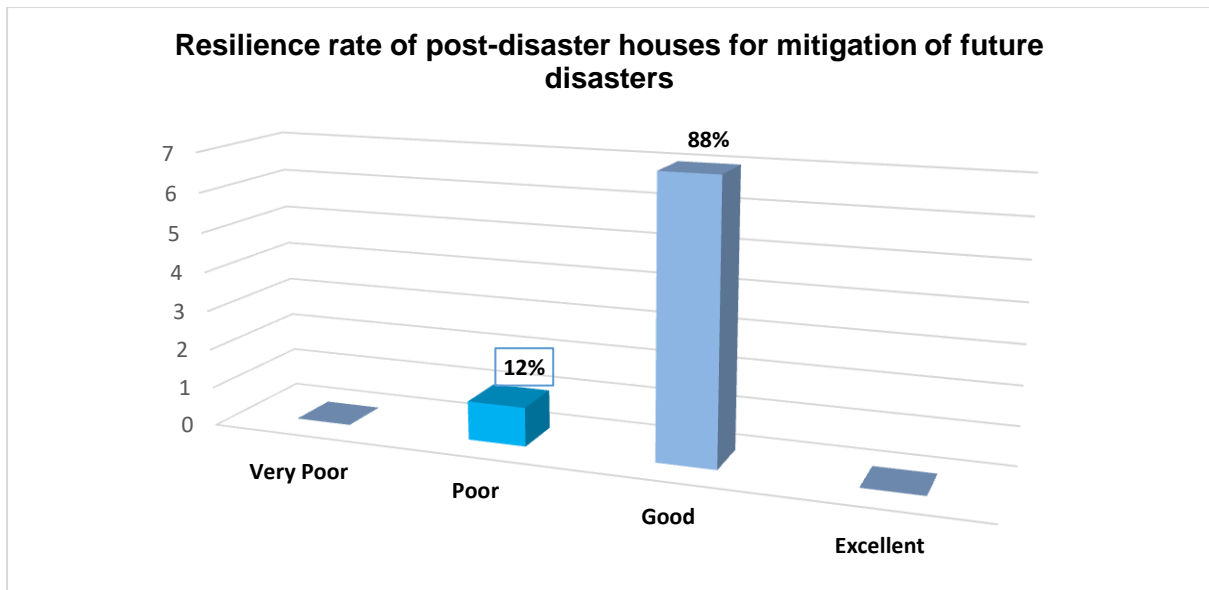
Is the Department of Human Settlements implementing disaster rehabilitation and reconstruction projects in line with policy requirements?	Frequency	Percentage
Strongly disagree	0	-
Disagree	0	-
No Opinion	0	-
Agree	2	25%
Strongly agree	6	75%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.32, shown majority of respondents believes that the Department has a legal responsibility to make provisions for the implementation of post-disaster housing rehabilitation and reconstruction. This could include: development and implementation of policies, plans, strategies and budget for disaster housing interventions.

#### **4.4.4.7 How would you rate the resilience of housing infrastructure, post rehabilitation and reconstruction, should there be a recurrence of disasters?**

This question was asked to establish the resilience rate of housing infrastructure, post rehabilitation and reconstruction. In Figure 4.20, 88% of respondents rated level of resilience as good, and 12% of respondents rated level of resilience as poor. There were no responses for very poor and excellent categories. The results implied that housing interventions provided meet national standards. However, triangulation of results from disaster management practitioners and communities also revealed that in some instance, resilience of structures is somehow compromised by emerging contractors who are cutting corners, perform substandard work because of cash flow challenges resulting in poorly built houses in the eyes of the community and compromising value for money from government perspective. Thus, the Department's reputation and image is compromised. The monitoring and evaluation should be intensified and capacity building for emerging contractors should also be strengthened. (See Figure 4.20)





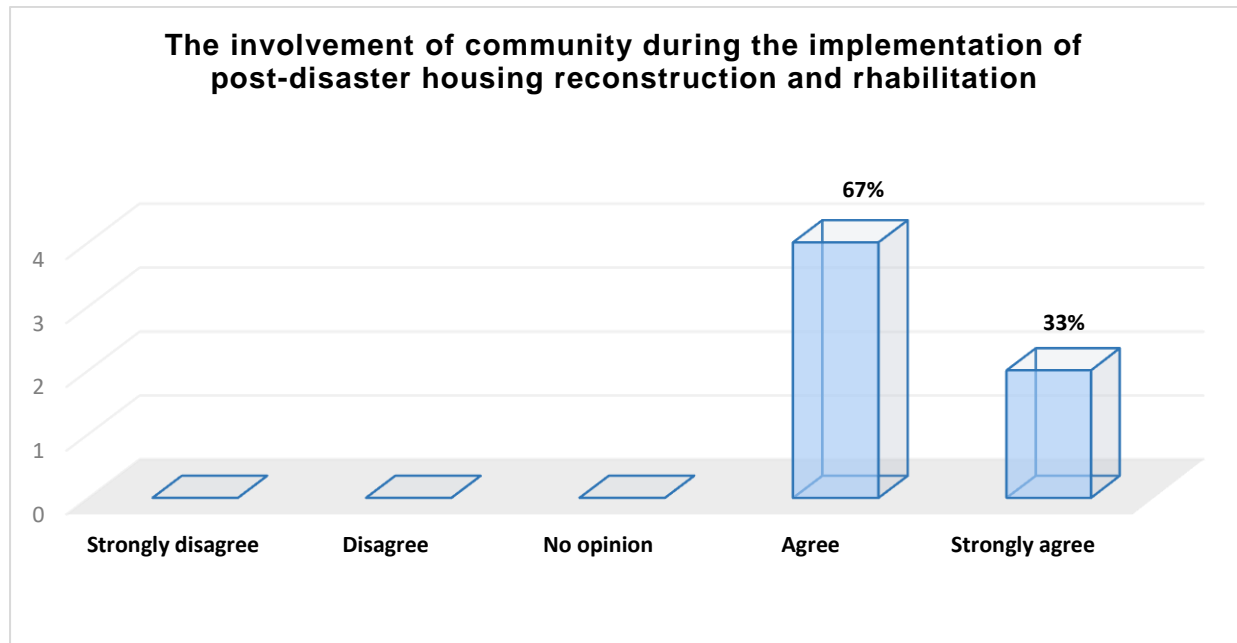
**Figure 4.20: How would you rate the resilience of housing infrastructure, post rehabilitation and reconstruction, should there be a recurrence of disasters?**

Figure 4.20, illustrated that resilience of houses delivery is good. However, there is a disjuncture between the results of communities and perspective of officials from the Department. In the eyes of the community, the sustainability of quality houses is the main issue, where houses completed and would be in a good condition for over a short period of time, later visible cracks on the walls appear or the roof starts leaking. Perspective from the officials is that all approved projects pass quality test and quality assurance. This quality assurance is only checked and tested during construction, once the contractor is off-site; there is no retention fee to fix visible poor workmanship. This is attributed by a number of factors such as lack of close monitoring and evaluation of projects; poor workmanship, unskilled and incompetent building inspectors.

#### **4.4.4.8 Does your department involve the community during the implementation of post-disaster housing rehabilitation and reconstruction projects?**

The respondents were asked to establish whether the Department involves the community during the implementation of post-disaster housing rehabilitation and reconstruction projects. As indicated in Figure 4.21, 67% of respondents agreed with the statement and 33% of respondents strongly agreed with the statement. There were no responses for other categories. In light of the above results, the Department of Human Settlements engaged the community public through ward councillors and local structures by having community meetings and feedback meetings regarding the

implementation of post-disaster housing reconstruction projects. The Disaster Management Act and The Sphere Project promote community participation of affected communities in all stages of post-disaster recovery (The Sphere Project, 2018 and Republic of South Africa, 2003). (See Figure 4.21)



**Figure 4.19 Does your department involve the community during the implementation of post-disaster housing rehabilitation and reconstruction projects?**

Figure 4.21 gave an overview of results which showed that the Department of Human Settlements involves the communities during post-disaster housing reconstruction. The qualitative data collected from one of the respondents stated that: “The communities are playing a very important role in our disaster projects, they are being appointed in the construction team, supplying the materials and transportation of materials within project sites.” (Interviewee No 5, between 41-50, 18 May 2020).

#### **4.4.4.9 Does your department prioritise economic development opportunities for local communities through post-disaster housing rehabilitation and reconstruction projects?**

This question was asked to establish whether the Department prioritises economic development opportunities for local communities through post-disaster housing rehabilitation and reconstruction projects. As indicated in Table 4.33, 62% of respondents strongly agreed with the statement and 38% of respondents agreed with the statement. There were no responses for other categories. In light of the above results, the Department of Human Settlements prioritise local economic development

opportunities through local leadership and local structures by employing local labour and providing local businesses with opportunities during construction of houses, building temporal structures and supply of building material. (See Table 4.33)

**Table 4.33: Does your department prioritise economic development opportunities for local communities through post-disaster housing rehabilitation and reconstruction projects?**

<b>Does your department prioritise economic development opportunities for local communities through post-disaster housing rehabilitation and reconstruction projects?</b>	<b>Frequency</b>	<b>Percentage</b>
Strongly disagree	0	-
Disagree	0	-
No Opinion	0	-
Agree	3	38%
Strongly agree	5	62%
<b>Total</b>	<b>8</b>	<b>100%</b>

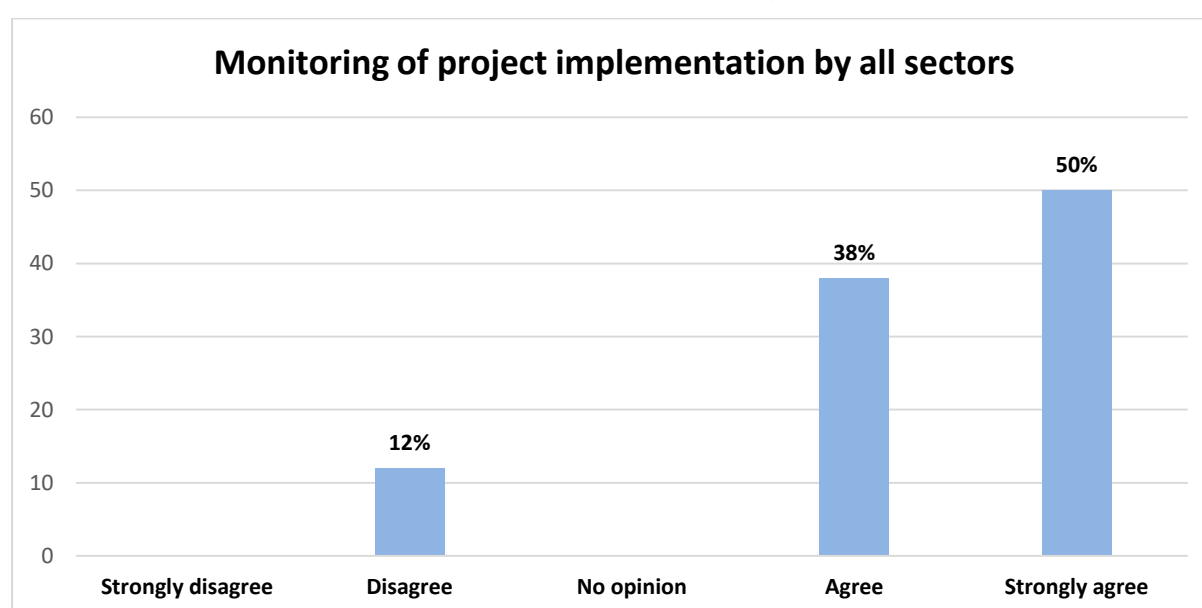
Table 4.33 gave an overview of the results which indicated that the Department of Human Settlements involves the communities during post-disaster housing reconstruction. The qualitative response captured as illustrated that the Department is actually prioritising empowerment of local communities. One of the respondents stated that “In terms of the Departmental Policy under Expanded Public Works Programme (EPWP) is used to provide the community with job opportunities and local economic development opportunities, so the Department prioritize them through all our departmental projects including post-disaster housing reconstruction.” (Interviewee No 6, between 41-50, 18 May 2020).

#### **4.4.5 Challenges faced in post-disaster housing rehabilitation and reconstruction**

The section gives an overview on challenges in post-disaster housing rehabilitation and reconstruction. The main aim of this section to understand what could be operational challenges experienced by officials from the Department of Human Settlements during the post disaster recovery phase.

#### 4.4.5.1 In your view, was the project implementation process closely monitored by all affected sectors?

The respondents were asked about project implementation process closely monitored by all affected sectors. As indicated in Figure 4.22, 50% of respondents strongly agreed with the statement, a total of 38% of respondents agreed with the statement and 12% of respondents disagreed with the statement. There were no responses for other categories. The results indicated that Department of Human Settlements closely monitors post-disaster housing projects. Qualitative results stated that the district teams conduct monthly and quarterly meetings as well as site meetings which are conducted to monitor project implementation. (See Figure 4.22)



**Figure 4.22: In your view, was the project implementation process closely monitored by all affected sectors?**

Figure 4.22 indicated a substantial number of participants stated projects for post-disaster housing reconstruction are closely monitored. The qualitative data collected indicated that Department has made strides in ensuring that projects are monitored. One of the respondents stated that: "There were monthly progress and technical meetings that were held monthly on site to assist in monitoring the progress and other challenges within the project." (Interviewee No 3, above 50, 18 May 2020).

#### **4.4.5.2 What is your view on communication mechanism on post-disaster recovery projects between the department, disaster management practitioners and affected communities?**

The respondents were asked about their views on communication mechanism on post-disaster recovery projects between the Department, Disaster Management Practitioners and affected communities. As indicated in Table 4.34, 50% of respondents indicated that communication mechanisms are not effective, a total of 37% of respondents stated that there are partially effective and 13% of respondents indicated that they are very effective. The results indicated that communication mechanisms for post-disaster recovery projects between key role players are not effective. Steinberg (2007) confirms that government and agencies should provide feedback to the community to build trust and accountability. Effective communication can improve work relations among key role players and ensures effective coordination of post-disaster housing reconstruction. (See Table 4.34)

**Table 4.34: What is your view on communication mechanism on post-disaster recovery projects between the department, disaster management practitioners and affected communities?**

<b>What is your view on communication mechanism on post-disaster recovery projects between the department, disaster management practitioners and affected communities?</b>	<b>Frequency</b>	<b>Percentage</b>
Very Effective	1	13%
Partially Effective	3	37%
Not Effective	4	50%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.34 provided an overview of the results which indicated that the information flow among key role players is a challenge and affects the effective implementation of post-disaster housing reconstruction.

#### **4.4.5.3 Comments on the quality of houses built through post-disaster housing reconstruction?**

The qualitative data collected from officials indicated that the Department is following all building code approval processes. One of the respondents stated that: "The Department provides the quality houses through all affected beneficiaries, these houses materials are checked before used on site and all materials have to comply with Building Regulation Act, (SABS or SANS). These houses are inspected in every

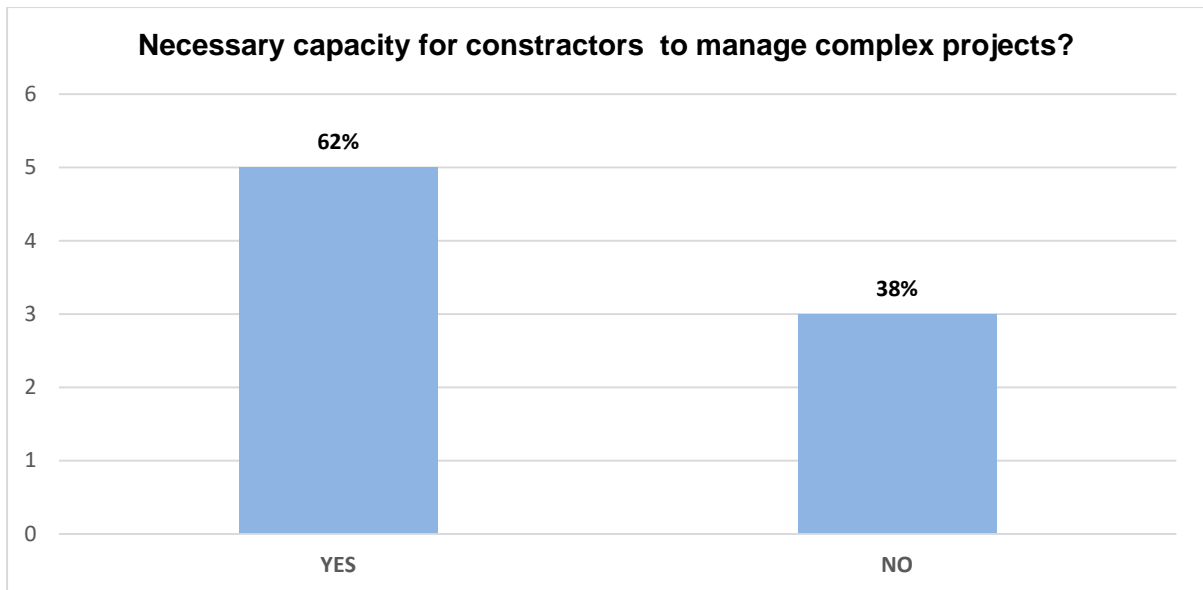
construction stages (foundations, walls, roofs, and completions), there are more than four Inspectors allocated in each district who conduct the inspection in all construction stages, The Departmental Inspector, Municipal inspector, NHBRC Inspector, and Residential Engineer. The contractors who build these houses must have a NHBRC certificates as compliance to build". (Interviewee No 4, between 41-50, 18 May 2020). This implied that the Department follows national building standards when implementing post-disaster housing rehabilitation and reconstruction.

#### **4.4.5.4 Does your department make use of external contractors in post-disaster housing rehabilitation and reconstruction projects?**

This question was asked to establish whether the Department makes use of external contractors in post-disaster housing rehabilitation and reconstruction projects. The results showed that 89% of respondents supported the statement and 11% of respondents were against the statement. The results indicated that the Department of Human Settlements does not have adequate institutional capacity to deal with post-disaster housing projects. Thus, the Department of Human Settlements outsources the services of project management and implementation to external contractors.

#### **4.4.5.4 Do these contractors have necessary capacity to manage complex projects?**

The question was asked whether contractors have the necessary capacity to manage complex projects. As indicated in Figure 4.23, 62% of respondents supported the statement and 38% of respondents were against the statement. The results showed that external contractors have adequate capacity to manage complex projects. (See Figure 4.23)

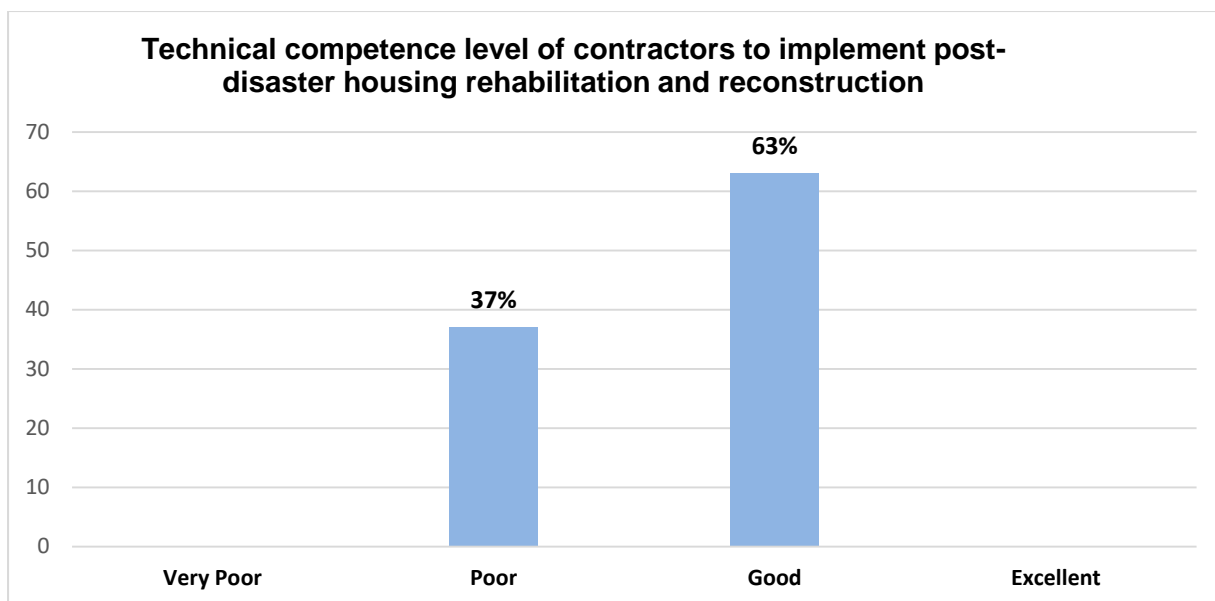


**Figure 4.23 Do these Contractors have necessary capacity to manage complex projects?**

Figure 4.23 provided an overview of results that contractors have the capacity to deal with complex projects. However, the qualitative responses indicate that insufficient funding, lack of communication and poor coordination of housing projects could have a detrimental effect on delivery of post-disaster housing reconstruction. It was further stated that the contractors must have a full construction team, resources and cash flow to sustain implementation of the project. This is a bare minimum requirement as part of the criteria to appoint professional service providers. Proper planning is very important in project management and to meet project targets on the programme. Construction experience also helps to succeed in these projects.

#### **4.4.5.5 What is the level of technical competence of contractors for post-disaster housing rehabilitation and reconstruction programme?**

The respondents were asked about the level of technical competence of contractors for post-disaster housing rehabilitation and reconstruction programme. As reflected in Figure 4.24, 63% of respondents stated that it is good and 37% of respondents stated that it is poor. There were no responses for other categories. The study indicated that contractors are technically competent to undertake post-disaster housing projects. This implied that contractors met all minimum requirements to qualify for tender award. (See Figure 4.24)



**Figure 4.24: What is the level of technical competence of contractors for post-disaster housing rehabilitation and reconstruction programme?**

Figure 4.24 provided an overview of an overall competency of contractors is good but the findings, through the researcher's observation, depicted some defects and poor workmanship in some of the houses. The qualitative response indicated that the compromised quality of works in housing construction is caused by poor supervision or limited inspection of houses.

#### **4.4.5.6 What could be challenges experienced by the Department of Human Settlements in implementation of post-disaster housing rehabilitation and reconstruction projects?**

Based on qualitative data collected, the Department indicated disruptions of post-disaster housing projects by Business Forums, socio-political issues at a local level, issues of land ownership and poor performance of contractors. It was also stated that there are delays with the verification of damages and budget allocation by National Treasury to Sector Departments to implement post-disaster housing reconstruction.

#### **4.4.5.7 Provide recommendations to overcome challenges identified in your response above**

The qualitative information received indicates that funding should flow quickly from National Treasury to Sector Departments. The Department should also consider making adequate budget provision for post-disaster housing reconstruction. Local contractors should be empowered and provided with local opportunities to sustain their



businesses. The land tenure issues should be resolved with land owners before approval of projects.

Building material supply assistance should respond to family needs, for example the ratio of percentage per households should be categorised into levels according to damages because the standard flat rates which is applicable to all affected communities is way below recovery cost and it will not cover all costs for building material. Housing assistance of building material supply should not be one size fits all. It should be guided by damage assessment. Therefore, the department should review its policies to address these gaps.

#### **4.4.6 Section F: Guiding framework for post-disaster housing reconstruction: Human Settlements**

This section gives an overview on the guiding framework for post-disaster housing reconstruction views and perspectives of officials from the Department of Human Settlements about a guiding framework for post-disaster housing reconstruction. The main purpose is to understand different opinions, views and perspectives of government officials from Department of Human Settlements about the proposed framework and what important elements should be considered.

##### **4.4.6.1 Are you aware of any existing framework for post-disaster rehabilitation and reconstruction?**

The question asked whether respondents were aware of any existing framework for post-disaster rehabilitation and reconstruction. The results indicated that 100% of respondents are not aware of any existing framework for post-disaster reconstruction. These results suggested that there is a need to introduce the guiding framework in order to standardise processes and to use a uniform approach in dealing with post-disaster housing projects. It is important to propose a guiding framework for post-disaster housing rehabilitation and reconstruction. This framework would provide an operational guide to disaster management practitioners and key role players for effective implementation of post-disaster housing programme.

#### 4.4.6.2 If no, do you think it is essential to have a standardised framework for disaster housing reconstruction?

The question asked whether it is essential to have a standardised framework for disaster housing reconstruction. As indicated in Table 4.35, 63% of respondents indicated that it is very important to have a standardised framework, a total of 25% respondents indicated that it is important and 12% of respondents stated that it is not important. The study results showed that there is a great need to develop a guiding framework for post-disaster housing rehabilitation and reconstruction. Literature reviewed indicates that institutional framework is important for planning, implementation and recovery of affected communities. (See Table 4.35)

**Table 4.35: If no, do you think it is essential to have a standardised framework for disaster housing reconstruction?**

If no, do you think it is essential to have a standardised framework for disaster housing reconstruction?	Frequency	Percentage
Very Important	5	63%
Important	2	25%
Not Important	1	12%
<b>Total</b>	<b>8</b>	<b>100%</b>

Table 4.35 indicated that it is essential to develop a framework for post-disaster housing reconstruction. This will assist spheres of government and key role players to improve disaster recovery plans and strategies. The qualitative response indicates that it is very important to develop a guiding framework for post-housing disaster reconstruction.

#### 4.4.7 Summary analysis of research results: officials from the Department of Human Settlements

The sections were also subdivided into similar thematic areas. The themes are as follows: Demographics of participants, legislative and policy framework guiding post-disaster housing rehabilitation and reconstruction, impact of disaster funding on conditions of post-disaster affected communities, government provide response and recovery measures for disaster affected communities, challenges in post-disaster housing reconstruction and guiding framework for post-disaster housing reconstruction. The demographic indicators of respondents were recorded: age group, position, experience and highest qualification. The respondents' demographics are

essential to the validity, integrity and dependability of the information gathered, particularly the work experience, education level and level of responsibility.

The majority of respondents were officials in junior, middle and senior management. The study revealed that many respondents are highly educated, have vast experience to contribute their knowledge, views and perceptions to build a body of knowledge in disaster management. The study revealed that the Department has established a dedicated Unit to deal with disaster management function, has developed a disaster management plan, operational plan and has a housing policy. However, there were policy gaps around post-disaster housing rehabilitation and reconstruction. The study revealed that funding has a direct impact on the effective delivery of the programme. Funding was received for declared disasters and was utilised effectively to respond to housing needs of affected communities.

The respondents stated that the level of resilience of houses built is good and in line with National Standards. The Department involves the community during the implementation of post-disaster housing rehabilitation and reconstruction projects through employment of local labour and delivery of building material. The majority of respondents indicated that the Department prioritises economic development opportunities for local communities through its EPWP programme.

The majority of respondents indicated that projects are closely monitored by all affected sectors and monitoring mechanisms are effective. The department makes use of external contractors in post-disaster housing rehabilitation and reconstruction projects. The majority of respondents indicated that contractors have the necessary capacity to manage complex projects as this becomes a requirement for consideration for employment in their services. The majority of respondents stated that the level of technical competence of contractors for post-disaster housing rehabilitation and reconstruction programme is good. However, there are challenges with emerging contractors with no capital and cash flow for a quick delivery on their scope of works. The majority of respondents are not aware of any existing framework for post-disaster rehabilitation and reconstruction and believed that it is very important to have a standardised framework.

## **CHAPTER 5**

### **PROPOSED GUIDING FRAMEWORK FOR POST-DISASTER HOUSING REHABILITATION AND RECONSTRUCTION**

#### **5.1 INTRODUCTION**

This chapter proposes a sound guiding framework for post-disaster housing reconstruction. The proposed framework emanated from lessons learnt, literature review, philosophical worldview and empirical findings of the study as set out in the research questions and research objectives. Furthermore, a thorough analysis of policy documents, legal prescripts, government reports dealing with post-disaster housing rehabilitation and reconstruction will be incorporated. It is envisaged that the guiding framework considers all important elements from empirical findings and secondary sources, as well as critical role players required to ensure successful implementation within disaster management fraternity. The framework outlines an institutional framework for post-disaster housing rehabilitation and reconstruction with clear institutional roles and responsibilities for recovery as part of their broader disaster risk reduction, disaster preparedness and contingency planning process. The chapter discusses empirical findings, proposed guiding framework and conclusions.

#### **5.2 LEGISLATIVE IMPLICATIONS FOR POST-DISASTER HOUSING REHABILITATION AND RECONSTRUCTION: SOUTH AFRICAN**

Disaster management in the RSA is established as a public sector function within each sphere of government. “Disaster management as an activity of all spheres of government relates to an integrated, multi-sectoral, multidisciplinary approach aimed at reducing the risk associated with hazards and vulnerability” (Republic of South Africa, 2002). “Chapter 3 of the Disaster Management Act, sections 29 (1) and 43 (1) provide for the establishment of disaster management as a function of each sphere of government, consistent with the autonomy of government espoused by the Constitution, through the establishment of disaster management structures across the spheres”. “Section 43 (3) of Disaster Management Amendment Act 16 of 2015 requires local municipalities to establish disaster management capacity for the implementation of disaster management plan”. “It is claimed that it is the local government that plays a predominant role, this is consistent with the operational

proximity of the local government to the communities, as opposed to other spheres of government” (UNISDR, 2003:188-195).

“The Act requires an integrated and coordinated policy that focuses on rapid and effective response to disasters and post-disaster recovery and rehabilitation”. “When a significant event or disaster occurs or is threatening to occur”, it is important to have clear roles and responsibilities. This section addresses key requirements for integrated response and recovery (Republic of South Africa, 2005). “According to the provisions of Section 25, 38 and 52 of the Disaster Management Act 57 of 2002, disaster management plans must be developed at national, provincial and local authority levels to efficiently manage all disasters as part of integrated development planning so as to ensure sustainable development” (Republic of South Africa, 2003). “Section 38 (1) calls for each provincial organ of state indicated in the national or provincial disaster management framework must be within the applicable provincial disaster management framework: - prepare a disaster management plan setting out- its functional area; management framework; disaster recovery and rehabilitation”.

Furthermore, “chapter 6 of the Act governs the funding arrangements for disaster response and recovery as well as rehabilitation and reconstruction”. “Section 56 (3) requires the organs of state to set aside a percentage of their budgets for post-disaster recovery efforts”. “The Act and the framework states that funds need to flow quickly to support response and recovery efforts”. “The Act places the onus for rehabilitation and reconstruction of infrastructure on the organ of state responsible for maintaining such infrastructure”. “Rehabilitation is not limited to infrastructure repair; it also includes rehabilitation of environment and communities” (Republic of South Africa, 2003).

“Section 7 of National Housing Code states that every Provincial Government, through its MEC, must, after consultation with the provincial organisations representing municipalities as contemplated in section 163 (a) of the Constitution, do everything in its power to promote and facilitate the provision of adequate housing in its province within the framework of national housing policy”. “Section 2 of National Housing Act of 1997 compels all three spheres of government to give priority to the needs of the poor in respect of housing development (Section 2(1) (a)”. The sector departments are required by the Act to develop contingency strategies and emergency procedures in

the event of a disaster, including measures to finance those strategies (Republic of South Africa, 2002).

The legislative review reveals that local government and Department of Human Settlements should prioritise post-disaster housing rehabilitation and reconstruction programmes as directed by the legislation. The legislation could contribute or can be a weakest point in the implementation of disaster housing reconstruction. The proposed framework would assist with standardisation of operational challenges and making recommendations for policy review to improve post-disaster housing rehabilitation and reconstruction.

### **5.3 CONCEPTUALISATION OF THE PROPOSED GUIDING FRAMEWORK ON POST-DISASTER HOUSING RECONSTRUCTION**

The literature review and empirical findings have high influence on the development of the proposed guiding framework for post-disaster housing rehabilitation and reconstruction. The previous experience of post-disaster management plays a major role as a learning curve for preparedness for future disasters and also serves as base for strategies of post-disaster housing reconstruction (Barenstein, 2006; Gharaati & Davidson, 2008; Mahdi & Mahdi, 2011; Ranghieri & Ishiwatari, 2014). As a point of reference in Chapter 2, literature reviewed which focused on good practices, successes and failures of post-disaster housing reconstruction was analysed extensively to the extent that scholars proposed strategies for post-disaster housing, in order to provide guidelines for proper planning and effective management. It is important to state that the proposed framework is mainly influenced by literature, government reports, research results and essential principles or elements recommended by respondents during the course of the study.

Disasters of high magnitude have severe impact which causes extreme damages to infrastructure, houses, displacement of families and disrupts community livelihoods and networks (Dunne and Mhone, 2003:03). The research findings revealed that the post-disaster housing is not reaching all affected communities. Communities are highly vulnerable to disasters and living conditions of affected people is not changing. People are still living in poor conditions, which exacerbated by delayed response and recovery

to address housing needs of affected communities. Disaster management legislative and policy frameworks are not fully implemented by all spheres of government. The issue of funding in disaster management is complex as sector departments and municipalities can only receive disaster funding for rehabilitation and reconstruction after recommendations from the NDMC and approval by National Treasury. This has proven to be a tedious process which takes longer to release funds immediately for rapid response and recovery. The study also found out that policies and plans are developed but are not inclusive of post-disaster housing reconstruction. In some cases, policies are ineffective due to insufficient budget and capacity to implement such policies.

Literature reviewed, good practices and lessons learnt from case studies of different countries such as the USA, Iran, Japan, India and Sri Lanka, as discussed and presented in Chapter 2, where most scholars as outlined by literature reviewed emphasised on the need to have standardised strategies and frameworks for effective post-disaster housing rehabilitation and reconstruction. The empirical study as captured in Chapter 4 under Figure 4.14 and Table 4.35 showed that there is a significant need to develop a guiding framework for post-disaster housing rehabilitation and reconstruction. This is also supported by literature where Patel & Hastak (2013) states that institutional framework for post-disaster housing reconstruction is very important to plan, execute and restore lives of the affected communities. The framework would assist government and agencies to improve preparedness plans and develop disaster response strategies with housing response time (Patel & Hastak, 2013). The empirical study and literature confirms that a guiding framework is essential in order to standardise processes and ensure uniform approach to post-disaster housing reconstruction.

The main objective of the proposed guiding framework is to standardise post-disaster housing reconstruction through proper planning, funding, coordination, monitoring and implementation. The framework should be developed to prioritise a systematic, structured and uniform approach for post-disaster housing recovery. It is also critical that disaster management legislation and policies in South Africa are used extensively as a point of reference to ensure that the proposed framework is also aligned with

already existing statutes and standards of practice, within the field of disaster management.

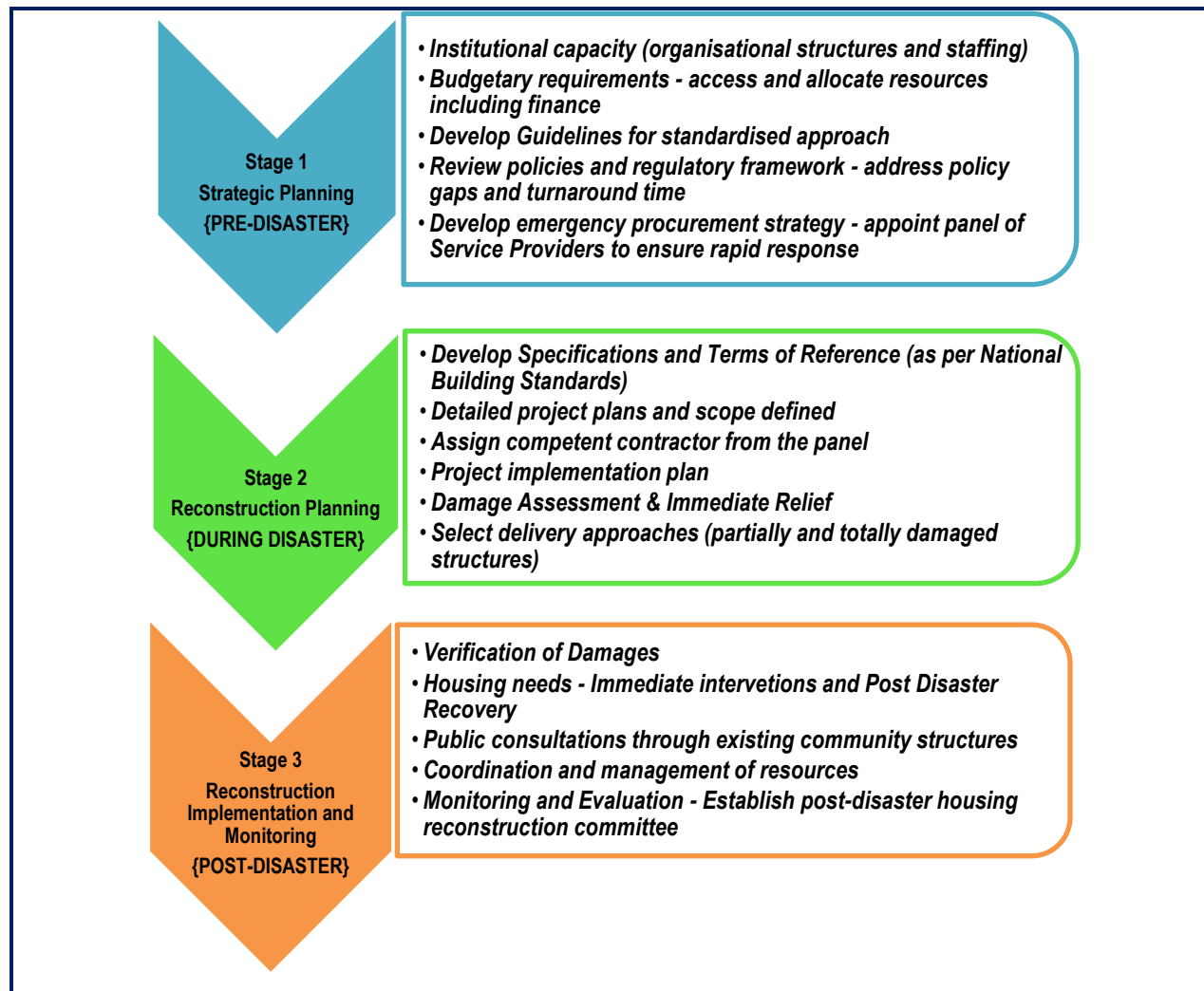
As suggested by Bilau *et al.*, (2015), the proposed framework should assist government and entities to develop a strategies or policies to improve and provide effective implementation post-disaster housing programmes. Post-disaster housing reconstruction is a process which requires concerted efforts from all critical stakeholders for successful implementation of the programme. The literature presented showed different phases of post-disaster housing reconstruction. These phases have detailed information regarding management of post-disaster housing reconstruction and included “pre-planning, immediate relief period, rehabilitation period and reconstruction period” as suggested by Baradan (1996). Furthermore, Bilau *et al.*, (2015) also suggested: “enabling strategic phase, reconstruction planning and construction implementation phase”. Patel and Hastak (2013) also suggested two phases: “pre-disaster planning and execution of the strategy”.

The researcher had to narrow down and analyse these phases with the main aim of addressing gaps for post-disaster housing reconstruction in South Africa. The second reason was to adopt only three stages that are more relevant to the South Africa's legislative context and application. The last reason was to address the main aim of the study and focus the study on addressing the problem statement captured and presented in Chapter 1. Furthermore, the approach was influenced by stages of the disaster management cycle which makes reference to pre-disaster activities, during disaster activities and post-disaster activities (Alexander, 2002:65; Amin *et al.*, 2008; Lettieri *et al.*, 2009; Amaratunga and Haigh, 2011; Perera *et al.*, 2011). Therefore, the researcher decided to use this approach and its application to link it with activities under the stages of the proposed guiding framework for post-disaster housing reconstruction and reconstruction. The conceptualisation of the proposed guiding framework adopted three stages underpinning the foundation, practice for effective implementation post-disaster housing rehabilitation and reconstruction. These stages were also influenced by the principles of Systems Theory which include: input, process, output and outcomes as discussed in Chapter 2, under the literature reviewed and also represent progressive linkage from stage 1-3, which means that each stage is dependent or interrelated to each other in a progressive fashion. In light



of systematic application and standardised approach, three stages are explained as follows:

**Figure 5.1: Conceptualisation of a proposed framework for post-disaster housing rehabilitation and reconstruction**



The proposed framework on post-disaster housing reconstruction consists of three stages as outlined and explained above. Furthermore, it is critical to discuss each stage and describe modalities for preparedness and effective delivery of post-disaster housing rehabilitation and reconstruction. This section further discusses each stage within the context of efficiency and effective delivery of post-disaster housing reconstruction programme.

### **5.3.1 Strategic Planning Stage: Pre-Disaster**

The strategic planning stage: activities undertaken pre-disaster phase. This stage enables decision makers in all spheres of government to provide institutional and budgetary framework for post-disaster housing reconstruction. The institutional capacity includes the establishment of organisational structure, coordinating structures/committees and staffing. Funding allocation is critical for the provision of post-disaster housing rehabilitation and reconstruction. As stipulated in the National Policy Framework for Disaster Management, “funds need to flow quickly to support response and recovery efforts” (Republic of South Africa, 2005). The strategic planning stage entails development of guidelines, policy reviews and regulatory framework developed or reviewed to ensure that policies are relevant and responsive to the real-time needs of post-disaster housing rehabilitation and reconstruction programme. The municipalities must strengthen disaster management capacity to ensure rapid response, quick assessment of damages and compilation of incident report and beneficiary lists.

Emergency response and recovery to disasters is not realised because there is low level of preparedness by spheres of government. During emergency situations, the Disaster Management Act 57 of 2002 and other legislative prescripts such as PFMA, MFMA and Treasury Regulations make legal provision for all spheres of government to invoke emergency procurement. The tender process is tedious and time consuming. It is critical for government at all levels to develop and implement procurement strategies responsive to the needs to the affected communities. This will assist sector departments and municipalities to reprioritise, within existing budgets, to fund response and recovery operations as suggested by the Act (Republic of South Africa, 2003).

### **5.3.2 Reconstruction Planning Stage: During Disaster**

Reconstruction planning stage: activities performed during disaster phase. This is where detailed project implementation plans and decisions are made in terms of delivery approaches as per damage assessment. The detailed planning should include project plan with clear milestones, scope of work defined, architectural designs

and layout designs, specifications for material supply in line with National Building standards, terms of reference, and quality assurance requirements. For the state of preparedness, it is critical that municipalities and sector departments appoint a panel of service providers to provide rapid response interventions. This activity has been clearly explained in stage 1 under emergency procurement strategy. The effectiveness of the reconstruction planning process is crucial for delivery of post-disaster housing reconstruction interventions for affected communities and contingency arrangements to ensure preparedness for the disaster eventuality.

### **5.3.3 Reconstruction Implementation and Monitoring Stage: Post Disaster**

Reconstruction implementation and monitoring should be undertaken during post-disaster phase. It is a stage where the actual reconstruction work is undertaken. The delivery approach is selected based on damage assessment and beneficiary list provided which will guide interventions required or housing needs of the affected communities. This is informed by housing needs assessment conducted during the initial stage of disaster response. The housing needs for affected communities should be classified into two categories: provision of temporal shelters and permanent housing solution. Temporal shelter must be provided to the displaced families whose houses have been partially damaged by disaster incidents. The provision of building material must be considered and it is a cost effective option for immediate response purposes. This option can be provided during the immediate response for totally destroyed and partially damaged structures. Permanent housing must be provided to beneficiaries whose houses have been totally destroyed by disaster incidents. Projects are implemented in accordance with a detailed project plan wherein work breakdown structures with critical milestones are outlined. The delivery of post-disaster housing should be in line with the project plan and architectural designs. The specification of material supply should be clear and adhered to by the Service Providers. Pre-requisite skills and competencies for workmanship are vital to ensure that all quality assurance requirements are met without compromising service standards.

Coordination and information sharing thus becomes even more essential to avoid duplications as well as to close gaps and to optimise the resources available for

sustainable recovery. Monitoring of projects should be done on regular basis as informed by project implementation plan and key milestones. The monitoring of projects should be on-going and should mirror the project life cycle. Project monitoring should be conducted through these mechanisms but not limited to the following: site inspections, regular reports, project steering committee reports and meetings.

There should be clear communication channels with all key role players. The communication channel must follow reporting and submission lines of incident reports and beneficiary lists. The communication mechanisms should be adopted to apprise beneficiaries which include but not limited to the following: email, tele-communication, whatsapp groups, community meetings, load hailing, community radio stations, community structures such as Ward Councillors and Ward Committees just to mention a few. It should also be indicated that DHS officials must follow clear communication protocol when responding to post-disaster housing interventions.

#### **5.4 OPERATIONAL GUIDE TO THE APPLICATION OF THE PROPOSED GUIDING FRAMEWORK FOR POST-DISASTER HOUSING RECONSTRUCTION**

This section will outline standard operating procedures for disaster response and recovery. Disaster incidents are logged and reported through municipal disaster management centres wherein damage assessments to determine extent of damages are undertaken. The information is consolidated into comprehensive reports and beneficiary lists for submission to other spheres of government and line function departments for immediate response and recovery strategies. In relation to post-disaster housing, the Department of Human Settlements becomes a leading agent to coordinate post-disaster interventions. In turn, the Department conducts inspection of damaged houses and verification the extent of damages in order to quantify damages for development a business case or motivation for funding of special projects for post-disaster housing recovery. In light of effective implementation of the framework, it is prudent to outline steps of the operational guide for post-disaster housing reconstruction as per legislative requirements and as suggested by literature.

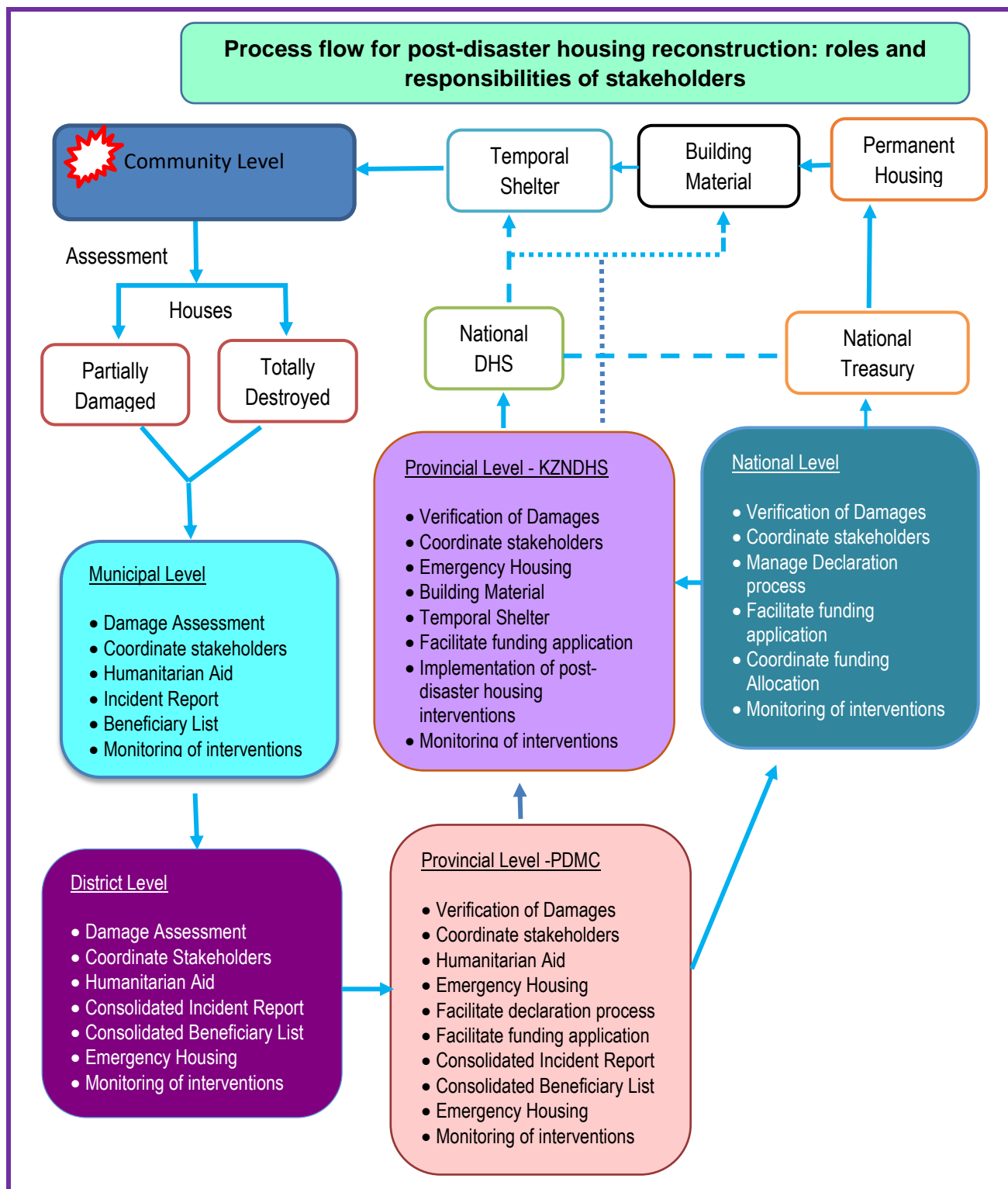
**Table 5.1: Steps of operational guide for effective implementation of the proposed guiding framework on post-disaster housing reconstruction**

Stage 1: Strategic Planning Stage - Pre-Disaster Phase				
Steps	Activities	Indicator	Agent responsible	Recommended Timeframe
Step 1	1.Develop/Review policies strategies, guidelines, tools and plans for effective post-disaster housing reconstruction	Policies, strategies, guidelines, tools and plans reviewed	Municipalities, PDMC and Department of Human Settlements	Annually
	3.Review/repurpose organisational structure for effective coordination and delivery of PDHR	Organisational structure reviewed	Municipalities, PDMC and Department of Human Settlements	As per policy requirements
Step 2	4.Recruit competent personnel to deal with disaster management	Competent and suitable personnel recruited	Municipalities, PDMC and Department of Human Settlements	As per Organogram
	5.Recruit and train DM volunteers for rapid response	DM volunteers recruited and trained	Municipalities	Annually
Step 3	6.Adequate budget for disaster response and recovery	Sufficient budget provided for disaster response and post-disaster housing initiatives	Municipalities, PDMC and Department of Human Settlements	Annually
	7.Integrate disaster risk reduction and disaster response measures in IDP processes	Disaster response measured integrated into the IDP processes	Municipalities	Annually
Step 4	8.Appoint panel of service providers for rapid provision of disaster relief and post-disaster housing initiatives	Panel of service providers appointed for rapid response	Municipalities, PDMC and Department of Human Settlements	Over 3 year period
Stage 2: Reconstruction Planning Stage - During Disaster Phase				
Steps	Activities	Indicator	Agent responsible	Recommended Timeframe
Step 5	1. Activation of relevant stakeholders	JOC Activation, minutes and preliminary reports compiled	Municipalities and relevant role players	Immediately
	2.Damage Assessment/ Needs Assessment	JOC Activation, minutes and preliminary reports compiled	Municipalities and relevant role players	Immediately
		Verification – inspection of damages houses (partially & totally	Department of Human Settlements	Within 72 hours
Step 6	3.Analysis of damage and needs assessment & Select delivery approaches	Humanitarian Aid/Disaster Relief provided	Municipalities & NGO's	Within 72 hours
		Emergency Shelter/temporal shelter & material supply	Municipalities, DHS, PDMC & NGO's	Within 72 hours
		Preliminary Report and Beneficiary List	Municipalities and relevant role players	Within 72 hours
Step 7	4.Scope of works defined with terms and conditions	Scope of works defined	Municipalities, PDMC and Department of Human Settlements	Immediately after damage assessment
	5.Develop terms of reference and specification	Terms of reference and specification developed	Municipalities, PDMC and Department of Human Settlements	Immediately
Step 8	6.Assign competent SP from the panel	SP assigned with a clear scope and Terms of Reference	Municipalities, PDMC and Department of Human Settlements	Immediately
	7.Develop and implement Project implementation plan	Project implementation plan developed and implemented	Municipalities, PDMC and Department of Human Settlements	Immediately and within 72 hours
	8. Monitor immediate relief interventions	Immediate relief intervention monitored	Municipalities, PDMC and Department of Human Settlements	Monthly-during implementation
Stage 3: Reconstruction implementation and Monitoring Stage - Post-Disaster Phase				
Steps	Activities	Indicator	Agent responsible	Recommended

				Timeframe
Step 9	1.Verification Exercise (Internal & External)	Verification report by District, Province & National	NDMC, National & Provincial Human Settlements	Within 14 days
Step 10	2.Council/Cabinet Resolution	Council resolution for classification and declaration	Municipality & Province	Within 14 days
	3.Classification and Declaration	Letter of classification by National	NDMC	Within 14 days
	4.Gazetting of declared areas	Government Gazette signed by the designated authority outlining declared area	PDMC & NDMC	Within 14 days
Step 11	5.Application of grant funding (Business plans and other supporting documents)	Packaging of interventions, project list with GPS coordinates and project champion	Municipalities and Line Departments	Within 14 days
Step 12	6.Verification and cost estimation – (External) PSP's	Costing and damage verification report	NDMC	Within 30 days
Step 13	7.Medium to long term housing recovery	Building of permanent houses	Department of Human Settlements or Municipalities	Between 12 – 36 months
	8.Monitor post-disaster housing projects	Post-disaster housing projects monitored	Municipalities, PDMC and Department of Human Settlements	Monthly –during implementation

#### **5.4.1 Process flow for post-disaster housing reconstruction: roles and responsibilities of stakeholders**

Based on the legislative mandate of spheres of government as discussed above, it should be proper to summarise functions of each sphere of government in terms of operational responsibilities for effective delivery of post-disaster housing reconstruction. Municipal Disaster Management Centres play a pivotal role in terms of damage assessment and provision of humanitarian aid. The comprehensive reports and beneficiary lists are submitted to relevant line functions through District and Provincial Disaster Management Centres. Illustrated below is the process flow for post-disaster housing rehabilitation and reconstruction.



**Figure 5.2: Process flow for post-disaster housing reconstruction: roles and responsibilities of stakeholders**

## **5.5 SUMMARY AND CONCLUSION**

This chapter discussed empirical findings and recommendations for the proposed guiding framework for post-disaster housing rehabilitation and reconstruction. The chapter covered some of the recommended elements of a guiding framework which included: South African legislative context related to post-disaster housing rehabilitation and reconstruction, conceptual model for post-disaster housing rehabilitation and reconstruction, stages of post-disaster housing reconstruction which included strategic planning stage, reconstruction planning stage and reconstruction implementation and monitoring stage, steps for operational guide for post-disaster housing and process flow for post-disaster housing reconstruction. The guiding framework for post-disaster housing reconstruction will serve as guide and platform to engage with key relevant stakeholders in order to improve delivery of houses to disaster affected communities.

Drawing from empirical findings of the study where an assessment of effectiveness of post-disaster housing reconstruction was conducted, it became clear that an institutional framework is important to guide the implementation of the programme. This framework will also assist the Department of Human Settlements to develop or review its policies from a well-informed position. The framework will also assist Disaster Management Practitioners and Researchers to make use of the framework as a reference guide. It should not be overstated that the framework has been able to break boundaries in terms of providing a clear guideline and being the first body of knowledge proposed to guide government strategic and operational processes in dealing with post-disaster housing rehabilitation and reconstruction.



## **CHAPTER 6**

### **CONCLUSION AND RECOMMENDATIONS**

#### **6.1 INTRODUCTION**

This chapter discusses study objectives in order to determine whether the research findings were able to answer the research question. The first chapter in the study posed the problem statement. As the study was unfolding, analysis of literature and research results were able to fulfil the aim of the study. The chapter discussed research findings in line with the objective of the study, study recommendations and recommended future research and conclusion.

#### **6.2 FINDINGS**

This section gives an overview of research findings and linkage to the research objectives. The objectives include assessing disaster management policies and legal frameworks for post-disaster housing reconstruction, assessing the impact of disaster funding on the living conditions of the affected communities during post-disaster phase, examining the effectiveness of government response and recovery measures, identifying challenges in post-disaster housing rehabilitation and reconstruction and proposing a guiding framework for post-disaster housing rehabilitation and reconstruction. It further discussed recommendations of the study and recommended future studies.

##### **6.2.1 The objective 1 of the study was to analyse disaster management policies and legal frameworks implemented during post-disaster housing reconstruction**

“The Disaster Management Act 57 of 2002 calls for an integrated and co-ordinated policy that focuses on rapid and effective response to disasters and post-disaster recovery and rehabilitation” (Republic of South Africa, 2003). The policies and legal frameworks play an important role in ensuring proper implementation of government programmes. The study revealed that communities are not involved in policy development. The study also found that policies and plans are developed but are not inclusive of post-disaster housing rehabilitation and reconstruction. In some cases, policies are ineffective due to insufficient budget and capacity to implement such policies. Planning for emergency housing provision is not budgeted for by

municipalities because of the lack of understanding of their constitutional mandate as required by section 152(1)(d) of the Constitution which 'requires local government to ensures a safe and healthy environment.' "According to the provisions 25, 38 and 52 of the Disaster Management Act 57 of 2002, disaster management plans must be developed at national, provincial and local authority levels to efficiently manage all disasters as part of integrated development planning so as to ensure sustainable development" (Republic of South Africa, 2003). The study revealed that the focal point for coordination has been established at a municipal level and departmental level. However, these units are not fully capacitated in order to improve functionality.

#### **6.2.2 The objective 2 of the study was assess the impact of disaster funding on the living conditions of the affected communities during post disaster phase**

The old regime spatial planning by the apartheid government is still visible in previously disadvantaged communities. Moe *et al.*, (2007) urges that barometer to measure performance of post-disaster reconstruction is simply by assessing the living conditions of affected communities and their perspective of whether their livelihoods have been restored to normality. Ruffin and Reedy (2015:224) cited by Dlodla (2016) further defined vulnerability theory by indicating some of the contributing factors such as socio-economic inequalities and political power inferences or repressive tendencies at a community level also increases vulnerable populations. The study revealed that post-disaster housing is not reaching all affected communities. However, communities are highly vulnerable to disasters and the socio-economic status of affected people has not changed, people are still living in poor conditions. This is also aggravated by delayed response and recovery to address housing needs of affected communities.

"Section 56 (3) of Disaster Management Act requires the organs of state to set aside a percentage of their budgets for post-disaster recovery efforts". Municipalities do not make budget provision for emergency housing interventions and they rely heavily on the Department of Human Settlements for assistance, whilst the Department is also inundated with post-disaster housing backlogs. As reflected in Figure 4.15, funding has a direct impact on effective delivery of post-disaster housing reconstruction. It is important to study relationship between subunits within the systems especially, to look into the input in the social system and the way in which inputs are processed, how

outputs are being produced and understanding whether interventions achieve policy objectives as suggested by scholars (The Sphere Project 2015; Australasian Evaluation Society 2010; Owen 2006; Ryan 2014 & Skyttner 2005). As indicated by literature in page 20, inputs such as policies, budget, focal point for coordination has a detrimental effect on Department of Human Settlements and Disaster Management Centres to achieve the desired output which is the coordination and delivery of houses for disaster affected communities.

### **6.2.3 The objective 3 of the study was to examine the effectiveness of government response and recovery measures for disaster affected communities**

The philosophy of the Sphere Project has two core principles focusing on affected communities: right to life dignity of the affected people and right to receive humanitarian assistance to ensure human suffering is contained and minimised. “These standards are grounded in beliefs and broader rights declared in the Humanitarian Charter” (The Sphere Project, 2018). The access to housing, shelter or settlement is one of the four minimum standards for key role players to meet in any humanitarian response. The minimum standards for shelter and settlements have practically expressed the right to adequate housing and how humanitarian response should honour this right. The State has an obligation to ensure that all vulnerable groups affected by disasters have access to adequate housing (The Sphere Project, 2018). The study revealed that common disaster relief provided by municipal disaster management centres is: food parcels, blankets, tents and plastic sheeting. However, results of the study show some discrepancies and delayed response with turnaround time to provide disaster response. Therefore, it could be affirmed that disaster management centres provides disaster response measures as required by the Constitution and other related prescripts. “Chapter 2 of the Republic of South Africa Constitution Act (No. 108 of 1996) provides for the Bill of Rights which is a cornerstone of democracy in South Africa”. “It also affirms other democratic values and rights which include access to housing: Every person has a right to have access to adequate housing and every person has inherent dignity and the right to have their dignity respected and protected. The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of these rights”. This study found that temporal and permanent shelter is provided by government to protect dignity and life of affected communities but there is a delayed

response in terms of turnaround time. The delays are attributed to poor planning, lack of adequate funding and delayed funding allocation by National Treasury. Hakim (2009), Mallick *et al.*, 2011 & Silva (2010) also outline some common challenges associated with post-disaster housing rehabilitation and reconstruction which include cost escalation, delays with implementation, poor quality and unsatisfied affected communities. The core philosophy of the Sphere Project promotes participation of affected communities in all stages of post-disaster recovery (The Sphere Project, 2018). The study noted that community has a critical role to play in all stages of post-disaster housing reconstruction.

#### **6.2.4 The objective 4 of the study was to identify challenges in post-disaster housing rehabilitation and reconstruction**

Patel and Hastak (2013:34) argues that the impact of disaster causes damages to houses and leaves many people homeless and displaced. Decision makers and disaster management practitioners are faced with the most challenging tasks of implementing post-disaster reconstruction and providing homes to the homeless within a shortest period possible (Patel and Hastak, 2013:34). The study found that communities are not happy with quality of some houses and was also not satisfied with management of post-disaster housing interventions. The study also revealed that post-disaster housing programmes are not closely monitored by municipalities and affected sectors. Worthy of note is the fact that the Department appoints emerging contractors who sometimes fail to deliver on time because of their cash flow challenges. As a result, projects are delayed or abandoned. The empirical research identified the following challenges: shortage of water during construction of houses, delays with delivery of building material, delayed housing assistance to needy families, poor communication or lack of regular feedback, incomplete houses that were left for more than 12 months, poor workmanship for those who have benefited from post-disaster housing reconstruction. The issue of land is a national challenge and the community of Tholeni were also experiencing such challenge and sometimes it affects delivery of post-disaster housing for affected communities who are living on privately owned land. One of the interviewees explained: "Most of the affected people are very poor and we do not have access to land and this is a stumbling block for us to rebuild our houses because without land we cannot rebuild our houses".

### **6.2.5 The objective 5 of the study was to propose a guiding framework for post-disaster housing rehabilitation and reconstruction**

The triangulation of results from different population sample using interviews and self-administered questionnaires affirmed the following. The majority of respondents were not aware of any framework that guides the implementation of post-disaster housing reconstruction. A large number of respondents stated it is necessary to develop a guiding framework for post-disaster housing reconstruction. The Act requires municipalities to develop disaster management plans and the large number of respondents stated municipalities must develop emergency housing policies as part of contingency planning. Response time for housing assistance is crucial as delayed response results in human suffering. Patel & Hastak (2013) and Bilau *et al.*, (2015) state that the institutional framework would assist all spheres of government to improve planning and disaster response strategies. Drawing from empirical findings of the study where an assessment of effectiveness of post-disaster housing reconstruction was conducted, it became clear that institutional framework is important to guide implementation of the programme. Chapter 5 provides a descriptive narrative of how a proposed guiding framework was conceptualised, based on literature review, good practices, lessons learnt from similar case studies and research results.

## **6.3 RECOMMENDATIONS**

### **6.3.1 Disaster management policies & legal frameworks implemented during post-disaster housing rehabilitation and reconstruction**

- The municipalities must develop policies to ensure effective and coordinated response to disasters. The turnaround time for disaster response should be improved.
- The Department of Human Settlements should enhance institutional capacity in order to ensure effective coordination of disaster housing interventions which includes the development of disaster management plans and policy frameworks.

### **6.3.2 The impact of disaster funding on the living conditions of the affected communities during post-disaster phase**

- The municipalities should increase budget provision in order to ensure effective and adequate delivery of post-disaster housing rehabilitation and reconstruction.
- This should assist with provision of housing assistance within a reasonable time and improve living conditions of vulnerable communities.

### **6.3.3 How government provided response and recovery measures for disaster affected communities of Tholeni**

- The current disaster response measures are effective and adequate but municipalities should improve budget for provision of disaster relief.
- The Department of Human Settlements should rework the funding model for post-disaster housing rehabilitation and reconstruction in order to provide rapid response to the needs of affected communities.

### **6.3.4 Challenges in post disaster housing rehabilitation and reconstruction**

- The Department of Human Settlements should consider prioritising provision of building material as a quick option to assist affected families.
- It should improve communication with disaster management centres when providing post-disaster housing rehabilitation and reconstruction projects in order to ensure that projects are monitored effectively.
- The Department of Human Settlements and Municipalities should improve communication protocols with affected communities and provide regular feedback to the community.
- The Department working with municipalities, traditional leaders and private land owners should engage with affected landless beneficiaries and provide them with an option to get a Permission to Occupy Certificate (PTO) from land owners in order for quick provision of post-disaster housing reconstruction projects. The Department should also review its housing policy to accommodate special cases for post-disaster housing reconstruction.
- It is recommended that government institutions appoint a panel of Service Providers and these should be on stand-by to provide services as and when disasters strike. These services should include technical assessment, provision of

humanitarian aid, and provision of post-disaster housing interventions to improve response turnaround time and avoid tedious SCM processes.

### **6.3.5 Guiding framework for post disaster housing reconstruction**

- There is a great need to develop a standardised framework to guide post-disaster housing reconstruction interventions.
- Municipalities should consider developing policies responding to emergency housing as part of contingency planning. The Department of Human Settlements should consider the development of a policy framework to guide post-disaster housing rehabilitation and reconstruction interventions.
- The policy framework should have a turnaround time for the Department of Human Settlements to provide effective post-disaster housing rehabilitation and reconstruction. The delivery timeframe should be within 90 days after a disaster has occurred.
- The guiding framework should assist with coordination of resources and relevant stakeholders. It should also assist with coordinated planning and standard operating procedures.
- The qualitative results indicated that the framework should include following features: legislative imperatives; short-term emergency housing interventions; medium to long term housing recovery; requirements for institutional capacity; role of critical stakeholders; communication protocol for housing recovery; standard operating procedure for post-disaster housing recovery; and monitoring and reporting mechanisms. The above elements or principles proposed during the course of the study were considered and incorporated into the guiding framework for post-disaster housing rehabilitation and reconstruction presented in Chapter 5.

#### **6.4 RECOMMENDED FOR FUTURE RESEARCH**

- The future research should focus on variables such as funding model and actual implementation of policies for post-disaster housing reconstruction;
- The future research should focus on institutional capacity and systems for post-disaster housing reconstruction;
- This study focused in Alfred Duma Local Municipality (Tholeni Area) within UThukela District Municipality. Thus, future research should focus on all local municipalities within the District;
- Future research should focus in all Districts within the Province; and
- Future research should also focus on all Provinces within the Country



## **6.5 CONCLUSION**

Chapter 1 of the study presented the introduction and background; Chapter 2 reviewed relevant literature; Chapter 3 focused on research methodology; Chapter 4 analysed the data and interpreted the results; Chapter 5 proposed a guiding framework for post-disaster housing reconstruction; and Chapter 6 reviewed the findings, made recommendations and gave conclusions. Based on literature reviewed, philosophical worldview, data analysed and empirical results drawn from the study, the study findings concluded by showing that the affected communities were not satisfied with post-disaster housing assistance. This research also revealed that the delivery of post-disaster housing lacks adequate funding, showed weak coordination and monitoring mechanisms, delayed response to affected communities, lack of proper communication with affected communities as well as policy gaps in the implementation of the programme.

Based on empirical results and literature review, the study proposed a guiding framework for post-disaster housing reconstruction to ensure a uniform and standardised approach, effective implementation of the programme and also to fulfil one of the study objectives. The framework will also add value to the decision makers, researchers and disaster management practitioners within the field of disaster management. Therefore, the researcher can conclude that the research questions were fully answered in line with the study objectives. The study recommended that the post-disaster housing policy be reviewed and the institutional capacity be strengthened, in order to improve planning, coordination, communication and monitoring of post-disaster housing initiatives and to address all challenges which emerged from the study. The effectiveness of post-disaster housing delivery is dependent on all actors to execute their legislative mandates as required by the legislation. All spheres of government have a legal responsibility to coordinate post-disaster housing recovery.

## REFERENCES

- Aceh Community Assistance Research Project (ACARP). 2007. *The Acehese Gampong Three Years On Assessing Local Capacity and Reconstruction Assistance in Post-tsunami Aceh*, Report. Aceh: ACARP.
- Ackerman, B., Schmid, I., Rudolph, K. E., Seamans, M. J., Susukida, R., Mojtabai, R., & Stuart, E. A. 2019. Implementing statistical methods for generalizing randomized trial findings to a target population. *Addictive Behaviours*, 94, 124-132. <https://doi.org/10.1016/j.addbeh.2018.10.033>
- Alexander D. 2002. *Principles of emergency planning and management*. Harpenden: Terra Publishing.
- Alexander D. 2004. Planning for post-disaster reconstruction. Paper presented at the In I-Rec 2004 *International Conference: Improving Post-Disaster Reconstruction in Developing Countries*. Montreal.
- Alexander D. 2015. *Major hazards and people with disabilities: a toolkit for good practice* Strasbourg: Council of Europe.
- Alfred Duma Local Municipality. 2015. *Integrated Development Plan*. Ladysmith: Alfred Duma Municipality. Available: [www.adlm.gov.za](http://www.adlm.gov.za) (Accessed 13 July 2019).
- Alfred Duma Local Municipality. 2018. *Integrated Development Plan*. Ladysmith: Alfred Duma Municipality. Available: [www.adlm.gov.za](http://www.adlm.gov.za) (Accessed 19 November 2020).
- Alfred Duma Local Municipality. 2020. *Integrated Development Plan*. Ladysmith: Alfred Duma Municipality. Available: [www.adlm.gov.za](http://www.adlm.gov.za) (Accessed 06 January 2021).
- Amaratunga D. and Haigh R. 2011. *Post-Disaster Reconstruction of the Built Environment: Rebuilding for Resilience*. London: Blackwall Publishing Ltd.
- Amin S., Cox M. and Goldstein M. 2008. 'Using data against disasters: Overview and synthesis of lessons learned' by Amin S. and Goldstein M., reviewed in The World Bank, Washington D.C., 316.
- Anon. 1998. "At Least 119 Dead as Heavy Rains Set Off Floods in South Africa" Edendale KwaZulu-Natal.
- Ashby, W. R. 1954. *Design for a Brain*. New York, NY: John Wiley & Sons, Inc
- Auriacombe C. J. 2001. *Guidelines for drawing up research proposals and preparing theses/dissertations*. Pretoria: University of South Africa.
- Australasian Evaluation Society (AEC). 2010. *AES Guidelines for the Ethical Conduct of Evaluations*. Available: [www.aes.asn.au/about-us/about-evaluation.html](http://www.aes.asn.au/about-us/about-evaluation.html) (Accessed 04 February 2020).
- Babbie E. 2010. *The practise of social research*. 12<sup>th</sup> ed. Belmont: Wadsworth.
- Babbie E. and Mouton J. 2003. *The practice of social research*. Cape Town: Oxford University Press.
- Babbie E. and Mouton J. 2008. *The practice of social research*, South African edition. Cape Town: Oxford University Press Southern Africa.
- Baradan B. 1999. *Analysis of the post-disaster reconstruction process following Turkish Earthquakes*, Izmir Institute of Technology.
- Barakat S. 2003. *Housing reconstruction after conflict and disaster*, Humanitarian Practice Network, Humanitarian Policy Group London: Overseas Development Institute (ODI).

- Barenstein J. D. 2010. 'Who governs reconstruction? Changes and continuity in policies, practices and outcomes' by Lizarralde G., Johnson C. and Davidson C. reviewed in *In Rebuilding after Disasters: From Emergency to Sustainability*, 14-76.
- Barenstein J. D. 2006. *Housing Reconstruction in Post-Earthquake Gujarat: A Comparative Analysis*, Overseas Development Institute (ODI). Humanitarian Practice Network (HPN).
- Barton A. H. 1969. *Communities in disaster; A sociological analysis of collective stress situations*. 1<sup>st</sup> ed. Garden City, NY: Doubleday.
- Bilau A. A., Witt E. and Lill I. 2015. A Framework for Managing Post-disaster Housing Reconstruction. *Procedia Economic Finance*, 21: 313–320.
- Bilau A. A., Witt E. and Lill I. 2018. Practice framework for the management of post-disaster housing reconstruction programmes. *Sustainability*, Vol 10 (Iss 11).
- Blaikie P., Cannon T., Davis I. and Wisner B. 1994. *At risk: natural hazards, people's vulnerability and disasters*. New York: Routledge.
- Blaikie P., Cannon T., Davis I. and Wisner B. 2014. *At risk: natural hazards, people's vulnerability and disasters*. New York: Routledge.
- Bolin R. 1993. *Household and Community Recovery after Earthquakes*. Boulder, CO: Institute of Behavioural Sciences.
- Bosher L. 2011. "Disaster risk reduction and 'built-in' resilience: towards overarching principles for construction practice". *Disasters* 35 (1): 1-18.
- Boulding K. E. 1956. *General system theory: the skeleton of science*. Available: <http://dx.doi.org/10.1287/mnsc.2.3.197> (Accessed 17 July 2019).
- Brown J. D. 2001. *Using surveys in language programs*. Cambridge: Cambridge University Press.
- Burns N. and Grove S. K. 2005. *The Practise of Nursing Research: Conduct, critique and utilization*. 5<sup>th</sup> ed. St Louis Elsevier Saunders.
- Cabane L. 2010. The circulation of risk governance: Crafting disaster management in South Africa Working papers du Programme Villes & Territoires, 2010-9 Paris, Sciences Po, <http://blogs.sciences-po.fr/recherche-villes/files/2010/12/WP-Cabane.pdf> (Accessed: 13 January 2020)
- Carr L.J. 1932. Disaster and the Sequence-Pattern Concept of Social Change. *America Journal of Sociology*. 38 (2): 207–218.
- Casteel, A. Bridier, N.L. 2021. Describing Populations and Samples in Doctoral Students Research. *International Journal of Doctoral Research*. Vol 16, 339 -369. <https://doi.org/10.28945/4766>, accessed: 24 October 2021
- Chang Y., Wilkinson S., Potangaroa R. and Seville E. 2010. Resourcing challenges for post-disaster housing reconstruction: a comparative analysis. *Building Research & Information*, 38: 247–264.
- Chivanga, S. Y. 2018. *The implementation of the Millennium Development Goals (MDGs) and poverty reduction in Zimbabwe: the role of Official Development Assistance (ODA)*
- Clapham D. 2009. "Introduction to the special issue - A theory of housing: problems and potential". *Housing, Theory and Society*. 26 (1): 1-9.

- Cosgrave J. 2008. *Learning from Earthquake Relief and Recovery Operations*. London, UK/Geneva, Switzerland: ALNAP/ProVention Consortium.
- Creswell J. W. 2008. *Qualitative inquiry and research - choosing among five traditions: Three components involved in a design*. Thousand Oaks, California: Sage.
- Creswell J. W. 2009. *Research Design: Qualitative, Quantitative and Mixed Methods Approach*. 3rd ed. London: Sage.
- Creswell J. W. 2012. *Educational research: Planning, Conducting and Evaluating Qualitative and Quantitative Research*. London: Sage.
- Creswell J.W. 2007. *Qualitative inquiry & research design*. Thousand Oaks. California: Sage.
- Creswell, J.W. 2013. *Research design: Qualitative, quantitative and mixed methods approaches*. 4<sup>th</sup> ed. London: Sage.
- Creswell, J.W. and Creswell, J.D. 2018. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage, Los Angeles
- Creswell, J.W. and Creswell, J.D. 2020. *30 Essential Skills for the Qualitative Researcher* (2nd ed. Edition), Sage, Los Angeles
- David W. and Peter B. 2003. *Using research instrument: A guide for researchers*. London and New York: Routledge Falmer.
- Davidson C. H., Johnson C., Lizarralde G., Dikmen N. and Sliwinski A. 2007. Truths and myths about community participation in post-disaster housing projects. *Habitat International*, 31 (1): 100–115.
- Dawson C. 2009. *Introduction to research methods: a practical guide for anyone undertaking a research project*. 4<sup>th</sup> ed. Oxford: How to Books.
- De Vos A. S., Strydom H., Fouché C. B. and Delport C. S. L. 2011. *Research at Grass Roots: For the Social Sciences and Human Service Professions*. 4<sup>th</sup> ed. Pretoria: Van Schaik.
- De Vos A. S., Strydom H., Fouche C. B. and Delport C. S. L. 2012. *Research at grassroots: For the social sciences and human service professions*. 5<sup>th</sup> ed. Pretoria: Van Schaik.
- De Vos A. S., Strydom H., Fouchie C. B. and Delport C. S. L. 2005. *Research at grass roots: for the social sciences and human services professions*. 3<sup>rd</sup> ed. Pretoria: Van Schaik.
- Dludla B. 2016. *Effectiveness of the EThekweni Municipality disaster risk reduction strategy pertaining to fires at informal settlements: A Case of Clare Estate informal settlements, South Africa*. Masters of Public Administration, University of KwaZulu-Natal.
- Dunne P. and Mhone G. 2003 Africa's crisis: recent analysis of armed conflicts and natural disasters in Africa. In *Focus Programme on Crisis Response and Reconstruction Working Paper*, 1 (5): 1–69.
- Dunne P. and Mhone G. 2003. Africa's crisis: recent analysis of armed conflicts and natural disasters in Africa. In *Focus Programme on Crisis Response and Reconstruction Working Paper*. 5 1–69.
- Duze P. M. 2016. *A Framework for disaster risk reduction for Local Government: A case study of EThekweni Municipality*. Masters of Administration, University of KwaZulu-Natal, Westville Campus.

- Eldridge S. M., Lancaster G. A., Campbell M. J., Thabane L., Hopewell S., Coleman C. L. and Bond C. M. 2016. *Defining feasibility and pilot studies in preparation for randomised controlled trials Development of a conceptual framework*. PLoS ONE, 11 (3)
- Emnambithi/Ladysmith Local Municipality (ELLM). 2011. *Integrated Development Plan (IDP)*. Ladysmith: Emnambithi/Ladysmith Municipality (ELLM).
- Federal Emergency Management Agency (FEMA). 2009. "National Disaster Housing Strategy" Available: <http://www.fema.gov> (Accessed: 12 December 2020).
- Gharaati M. and Davidson C. 2008. *Who Knows Best? An Overview of Reconstruction after the Earthquake in Bam, Building Resilience: Achieving Effective Post-Disaster Reconstruction*, (i-Rec 2008).
- Gibbs G. R. 2007. *Thematic coding and categorizing. Analysing Qualitative Data*. London: SAGE Publications, Ltd.
- Gillham B. 2000. *The research interview*. London and New York: Continuum.
- Grunig J. E., Grunig L. A., Sriramesh K. and Lyria A. 1995. Models of Public Relations in an International Setting. *Journal of Public Relations Research*, 7 (3): 63-186.
- Grunig L. A., Grunig J. E. and Dozier D. M. 2002. *Excellent Public Relations and Effective Organisations*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Grunig L. A., Grunig J. E. and Ehling W. P. 1992. *What is Effective Organisation?* in J.E. Grunig (Ed), *Excellence in Public Relations and Communication Management*. New Jersey: Lawrence Erlbaum Associates.
- Haas J. E., Robert W. K. and Martyn J. B. 1977. *Reconstruction Following Disaster*. Cambridge: The MIT Press.
- Hakim S. S. 2009. Sustainability of assisted shelter projects in post-cyclone communities: the case of Southkhali CASE. Bangladesh. *BRAC University Journal*, 4 (1)
- Hallegatte S., Vogt-Schilb A., Bangalore M. and Rozenberg J. 2017. *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*, Washington DC: World Bank Group.
- Hans B. and SAPA. 2011. KZN Towns Flooded.
- Hendriks, E. & Opdyke, A. 2020. Knowledge adoption in post-disaster housing self-recovery. *Disaster Prevention and Management: An International Journal*, Vol. 29 No. 6, 2020 pp. 849-864 Emerald Publishing Limited, Accessed: 09 November 2021
- Hidayat B. and Egbu C. 2011. Knowledge communication in post disasters reconstruction projects. *Paper presented at the 10th International Postgraduate Research Conference* 14-15 September 2011 Salford, Manchester, UK, IPGRC 2011, 639-650.
- Hothersall, S. J. 2019. Epistemology and social work: enhancing the integration of theory, practice and research through philosophical pragmatism. *European Journal of Social Work*.
- Humby T. 2012. *An analysis of legislation related to disaster risk reduction in South Africa: A report* commissioned by The International Federation of Red Cross and Red Crescent Society (IFRC) unpublished.
- IFRC. 2011. *International Federation of Red Cross and Red Crescent Societies International Committee of the Red Cross (ICRC). 1994. The ICRC's Annual Report*. Geneva: ICRC, 1995.

- Jha A. B., Jennifer D., Daniel P. and Stephen S. 2010. *Safer homes, stronger communities: a handbook for reconstructing after natural disasters*. Washington, DC: World Bank.
- Johnson C. 2007. Strategic planning for post-disaster temporary housing. *Disasters*, 31 (4): 435–458.
- Jones T. L. 2006. Mind the Gap! *Post-disaster reconstruction and the transition from humanitarian relief*. RICS, University of Westminster: 1–105.
- Kaushik, V. and Walsh, C.A. 2019. Pragmatism as a Research Paradigm and its implications for Social Work Research. *Social Sciences*, Vol 8, 1-17. <https://doi.org/10.3390/socsci8090255>
- Kennedy J., Ashmore J., Babister E. and Kelman I. 2008. The meaning of ‘build back better’: Evidence From post-tsunami Aceh and Sri Lanka. *Journal of Contingencies and Crisis Management*, 16 (1): 24–36.
- Khan, S. N. 2014. Qualitative research method: Grounded theory. *International Journal of Business and Management*, 9(11), 224-233. <https://doi.org/10.5539/ijbm.v9n11p224>
- Khuzwayo, Q.O. 2020. The Systems Theory Conceptualised and Pasted to Teaching and Learning, *International Journal for Innovation Education and Research*. www.ijer.net Volume 8, Issue No 10. International Educative Research Foundation and Publishers, Accessed: 10 November 2021
- Kivunja, C. 2018. Distinguishing between Theory, Theoretical Framework and Conceptual Framework: A Systematic Review of Lessons from the Field, *International Journal of Higher Education, School of Education*, University of New England, Armdale, December 2018, Volume 7, Issue No 6 p 44-46. <https://doi.org/10.5430/ijhe.v7n6p44>, Accessed: 09 November 2021
- KZN-DHS. 2012. *KwaZulu-Natal Department of Human Settlements Annual Report*. Pietermaritzburg: KwaZulu-Natal DHS.
- KZN-PDMC. 2011. *KwaZulu-Natal Provincial Disaster Management Centre Annual Report*. Pietermaritzburg: KwaZulu-Natal CoGTA.
- KZN-PDMC. 2012. *KwaZulu-Natal Provincial Disaster Management Centre Annual Report*. Pietermaritzburg: KwaZulu-Natal CoGTA.
- KZN-PDMC. 2020. *KwaZulu-Natal Provincial Disaster Management Centre Annual Report*. Pietermaritzburg: KwaZulu-Natal CoGTA.
- Lai, C., & Lin, S. H. 2017. Systems Theory in Craig R. Scott and Laurie Lewis (Editors-in-Chief), James R. Barker, Joann Keyton, Timothy Kuhn, and Paaige K. Turner (Associate Editors). *The International Encyclopedia of Organisational Communication*. Singapore: John Wiley & Sons, Inc, Accessed: 10 November 2021
- Lawther P. M. 2009. Community involvement in post disaster re-construction – case study of the British Red Cross Maldives recovery programme. *International Journal of Strategic Property Management*, (13): 153–169.
- Le Masurier J., Rotimi J. O. B. and Wilkinson S. 2006. A Comparison between Routine Construction and Post-Disaster Reconstruction with Case Studies from New Zealand. In D. Boyd (Ed.) *Paper presented at the 22nd Annual ARCOM Conference*, 4-6 September 2006. Birmingham, UK, Association of Researchers in Construction Management, 523–530.
- Leedy P. D. and Ormond J. E. 2001. *Practical Research Planning and Design* 7<sup>th</sup> ed. USA Prentice-Hall.
- Lettieri, E., Masella, C. and Radaelli, G. 2009. Disaster management: findings from a systematic review. *Disaster Prevention and Management: An International Journal*, 18 (2): 117-136.

- Lindell M. K. and Prater C. S. 2004. Politics of Hazard Mitigation. *Natural Hazard Review*, 1 (2)
- Lyons M. 2009. Building Back Better: *The Large-Scale Impact of Small-Scale Approaches to Reconstruction*. 37(2): 385–398. Available: doi:10.1016/j.worlddev.2008.01.006
- Mahdi T. and Mahdi A. 2013. Reconstruction and Retrofitting of Buildings after Recent Earthquakes in Iran. Paper presented at The 2nd International Conf. on Rehab and Maintenance in Civil Engineering. *Procedia Engineering*. 127-139.
- Malhotra N. K. 2004. *Marketing research: An applied orientation*. 4<sup>th</sup> ed. NJ: Prentice Hall: Upper Saddle River.
- Mallick B., Rahaman K.R. and Vogt J. 2011. Coastal livelihood and physical infrastructure in Bangladesh after cyclone Aila. *Mitigation and Adaptation Strategies for Global Change* 16 (6): 629–648.
- Mambo, J. and Facer, K. 2017. Understanding the Social & Environmental Implications of Global Change: *Risk and Vulnerability Atlas, Second Edition*, African Sun Media
- Mansoor Z. and Williams M. J. 2018. *Systems of Public Service Delivery in Developing Countries*, Blavatnik School of Government: University of Oxford.
- Masukume, P. M., Makaka, G., & Mukumba, P. 2018. Optimization of the Power Output of a Bare Wind Turbine by the Use of a Plain Conical Diffuser. *Sustainability*, 10(8), 2647.
- Maxwell T. A. 2003. *The public need to know- emergencies government organizations and public information*. Government Information Quarterly.
- McElreath M. P. 1993. *Managing Systematic and Ethical Public Relations*. Winconsin: WCB Brown & Benchmark Publishers.
- Mileti D. 1999. *Disaster by Design*. Washington, DC: Joseph Henry Press.
- Mileti D., Drabek T. and Haas J. E. 1995. Human systems in extreme Environments. Boulder: *Institute of Behavioural Science*, University of Colorado.
- Mileti, D.S., and Sorensen, J.H. 1990. *Communication of emergency public warnings: A social perspective and state-of-the-art assessment*. Washington, DC: Federal Emergency Management Agency.
- Miller K. 2003. *Organisational Communication, Approaches and Processes*. 3<sup>rd</sup> ed. California USA: Wadsworth/Thomson.
- Mishra S.B. and Alok S. 2019. *Handbook of Research Methodology*. New Delhi: Educreation Publishing.
- Moe T.L., Gehbauer F., Mueller M. and Senitz S. 2007. Balanced scorecard for natural disaster management projects. *Disaster Prevention and Management* 16 (5): 785–806.
- Morgan D. L. 2007. Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research* 1:48–76.
- Myburgh P. 2005. *Personal and community crisis* by In Strydom E. M. L., Le Roux P. A. K., Landman A. A., Christianson M.A., Dupper O.C., Myburgh P., Barker F.S., Garbers C.J., Basson A.C., Dekker A. and Esselaar V. eds. reviewed in, 179-184.
- Nepal Reconstruction Authority (NRA). Nepal, G. o. 2016. Nepal Earthquake 2015: Post-Disaster Recovery Framework. Singha, Dunbar, Kathmundu, Nepal: *Nepal Reconstruction Authority*. Available: <http://nra.gov.np/> (Accessed 17 September 2020).

- Neuman W. L. 2000. *Social research methods: qualitative and quantitative approaches*, 4<sup>th</sup> ed. Boston: Allyn and Bacon.
- Ngulube P. 2005. Improving the quality of research outputs in higher education through knowledge sharing and collaboration: a case study. *Mousaion*, 23 (11): 39-61.
- Ophiyandri T., Amaratunga D., Pathirage C. and Keraminiyage K. 2013. Critical success factors for community-based post-disaster housing reconstruction projects in the pre-construction stage in Indonesia. *International Journal of Disaster Resilience in the Built Environment*, 4 (2): 236–249.
- Ophiyandri T., Amaratunga R. D. G. and Pathirage C. P. 2010. *Community Based Post Disaster Housing Reconstruction*. Indonesian perspective,
- Owen J. 2006. *Program Evaluation: Forms and Approaches*, Allen & Unwin. 3<sup>rd</sup> ed. Crows News.
- Oxfam. 2005. *The Tsunami's Impact on Women*. Oxfam Briefing Note 30. Available: <http://www.oxfam.org/sites/www.oxfam.org/files/women.pdf> (Accessed 19 Nov 2019).
- Parsons, T. 1951. *The Social System*. Glencoe, IL: Free Press.
- Patel S. and Hastak M. 2013. A framework to construct post-disaster housing. *Journal of Disaster Resilience in the Built Environment*, Vol 4 (Iss 1): pp 95 - 114.
- Paton D. and Johnston D. 2001. Disasters and communities: vulnerabilities, resilience and preparedness. *Disaster Prevention and Management*, 10 (4): 270-277.
- Paton M. Q. 2002. *Qualitative Research and Evaluation Methods*. Thousand Oaks, CA: Sage.
- Pavlik J. V. 1987. *Public Relations: What Research Tell Us*. California, USA: Sage Publications.
- Perera S., Alinden C. and Amaratunga R. 2010. *Investigating the status of disaster management within a world-wide context: a case study analysis*.
- Phillips B. D. 2016. *Disaster Recovery*. Boca Raton FL: CRC Press: Taylor & Francis Group.
- Poole, M. S. 2014. Systems theory in L. L. Putnam & D. K. Mumby (Eds.). *The SAGE Handbook of Organizational Communication: Advances in Theory, Research, and Methods* (pp. 49–74). Thousand Oaks, CA: Sage. Rice, R. E., & Richards, W. D.
- Quarantelli E. 1982. "What is disaster? The need for clarification in definition and conceptualization in research." *Disasters and Mental Health Selected Contemporary Perspectives*: 41-73.
- Quarantelli E.L. 1995 Patterns of sheltering and housing in US disasters. *Disaster Prevention and Management*, 4(3): 43–53.
- Ranghieri F. and Ishiwatari M. 2014. *Learning from Megadisasters: Lessons from the Great East Japan Earthquake*. Washington, CD: World Bank.
- Reddy M. 2010. *An Integrated Disaster Risk Assessment Model for Local Government in South Africa*. PHD, University of North West.
- Republic of South Africa. 1996. *Constitution of the Republic of South Africa of 1996*. Pretoria: Government Printers. RSA.
- Republic of South Africa. 1997. *The National Housing Act (No. 107 of 1997)*. Pretoria: Government Printers. RSA.



- Republic of South Africa. 2003. *Disaster Management Act (No. 57 of 2002)*. Pretoria: Government Printers. RSA.
- Republic of South Africa. 2005. *National Disaster Management Policy framework*. Pretoria: Government Printer. RSA.
- Republic of South Africa. 2009. *National Emergency Housing Policy*. Pretoria: Government Printers. RSA.
- Republic of South Africa. 2015. *Disaster Management Amendment Act (No. 16 of 2015)* Pretoria: Government Printer. RSA.
- Roosli, R. and Collins, A. E. 2016. Key Lessons and Guidelines for Post-Disaster Permanent Housing Provision in Kelantan, Malaysia. United Kingdom: *Procedia Engineering*, Elsevier Ltd.
- Rotimi J. O. B., Le J. and Wilkinson S. 2006. The Regulatory Framework for Effective Post- Disaster Reconstruction in New Zealand. *Paper presented at the In Third International Conference on Post-Disaster Reconstruction: Meeting Stakeholder Interests*, I-Rec May 17 - 18, 2006 Florence, Italy,
- Ruffin F. and Reddy M. 2015. *Towards solid intergovernmental relations for disaster risk reduction*. In: Reddy P.S. and de Vries M.S eds. *Quo Vadis? Local governance and development in South Africa since 1994* Brussel: Bruylant.
- Ryan R. 2014. Presentation of the logic of programs, UTS, unpublished Seifert, S and Nieswand, M2014. *What drives intermediate local government spending efficiency: the case of French Department*.
- Sekaran U. 2000. *Research Methods for Business: A Skill-Building Approach*. 3<sup>rd</sup> ed. John Wiley & Sons: Inc.
- Sekaran U. 2003 *Research Methods for business* 4<sup>th</sup> ed. John Wiley and Sons: Inc.
- Sekaran U. and Bougie R. 2010. *Research Methods for Business: A Skill Building Approach*. London: John Wiley & Sons.
- Sekaran U. and Bougie R. 2020. *Research Methods for Business: A Skill Building Approach*. 8<sup>th</sup> Ed. London: John Wiley & Sons.
- Sekaran, U. 2006. *Research methods for business: A skill building approach*. John Wiley & Sons.
- Shaw J and Ahmed I. 2010. *Design and Delivery of Post-disaster Housing Resettlement Programs: Case Studies from Sri Lanka and India*. Monash Asia Institute, Monash University.
- Silva J. da. 2010. *Lessons from Aceh: Key Considerations in Post-Disaster Reconstruction*. *Disasters Emergency Committee*. ARUP. Warwickshire, UK: Practical Action Publishing.
- Silverman D. 2006. Interpreting Qualitative Data: Methods for Analysing Talk, Text and Interaction (Third edition) Forum Qualitative Sozialforschung / Forum: *Qualitative Social Research*, 9 (1)
- Skyttner L. 2005. *General Systems Theory: Problems, perspective, practice*. Singapore: World Scientific Publishing.
- Stange K. C., Crabtree B. F. and Miller W. L. 2006. Publishing multimethod research. *Annals of Family Medicine* 4(4): 292–294.
- Steinberg F. 2007. Housing reconstruction and rehabilitation in Aceh and Nias, *Indonesia-Rebuilding lives*. 31 (1): 150–166.

- Sullivan M. 2003. Integrated Recovery Management: A New Way of Looking at A Delicate Process. *The Australian Journal of Emergency Management*, 18 (2): 5-27.
- The Sphere Project. 2015. *Humanitarian Charter and Minimum Standards in Humanitarian Response*. Geneva, Switzerland: Practical Action Publishing.
- The Sphere Project. 2011. *Humanitarian Charter and Minimum Standards in Humanitarian Response*. Geneva, Switzerland: Practical Action Publishing.
- The Sphere Project. 2018. *Humanitarian Charter and Minimum Standards in Humanitarian Response*. Geneva, Switzerland: Practical Action Publishing.
- Thomas G. 2009. *How to Do Your Research Project: A Guide for Students in Education and Applied Social Sciences*, Sage Publications.
- Thomas G. 2010. *Research Methodology, Methods and Design*. London: Sage Publications Ltd.
- Tierney K. J., Lindell M. K. and Perry R. W. 2001. *Facing the unexpected: Disaster preparedness and response in the United States* Washington, D.C.: Joseph Henry Press.
- UDHR. 2015. *Universal Declaration of Human Rights (UDHR)*, United Nations Regional Information Centre (UNRIC).
- UNDRO. 1982. *Shelter after Disaster: Guidelines for Assistance*. New York: United Nations.
- UNISDR. 2007. *International Recovery Platform Learning from Disaster Recovery: Guidance for Decision Makers*
- UNISDR. 2009a. *Status report on Disaster Risk Reduction in sub-Saharan Africa – contributing to the implementation of the Hyogo Framework*. United Nations International Strategy for Disaster Reduction.
- UNISDR. 2009b. *UNISDR Terminology on Disaster Risk Reduction*. [Online]. Available: [www.unisdr.org/publications](http://www.unisdr.org/publications) (Accessed: 12 May 2020).
- UNISDR. 2015. *Sendai Framework for Disaster Risk Reduction 2015 - 2030*. Geneva: Switzerland: United Nations International Strategy for Disaster Reduction. Available: [www.unisdr.org/publications](http://www.unisdr.org/publications). (Accessed: 16 June 2019).
- United Nations Centre for Human Settlements (HABITAT). 2001. *Guidelines for Operational Programme Formulation in Post Disaster Situations: A Resource Guide*. Nairobi: HABITAT Risk and Disaster Management Unit.
- United Nations Inter-agency Secretariat of the International Strategy for Disaster Reduction (UNISDR). 2003. *“Living with Risk: Turning the tide on disasters towards sustainable development”* Preliminary Version. Geneva: ISDR.
- UNPD. 2017. *Annual Report*. USA: United Nations Development Programme.
- Uyangoda J. 2005. *Post-Tsunami Recovery in Sri Lanka, Polity 2, 3*. Social Sciences Association of Sri Lanka, Colombo,
- Van der Waldt G. and Du Toit G. F. P. 1997. *Managing for excellence in the public sector*. 1<sup>st</sup> ed. Cape Town: Juta & Co, Ltd.
- Van Niekerk D and Visser R. 2009. *A funding model for disaster risk management function of municipalities*. Pretoria NDMC.

- Van Niekerk D. 2014. A critical analysis of the South African Disaster Risk Management policy and legislation. *Disasters Journal*, 38 (4): 858-877.
- Van Niekerk D. A. 2005. *Comprehensive framework for multi-sphere disaster risk reduction in South Africa* (Dissertation Ph.D.), North West University: Potchefstroom.
- Vihanvati M. and Mulligan M. 2017. A new model for effective post-disaster housing reconstruction: Lessons learnt from Gujarat and Bihar in India. *International Journal of Project Management*,
- Walton R. E. 1969. *Interpersonal Peacemaking: Confrontation and Third Party Consultation Reading*, MA: Addison Wesley.
- Warfield C. 2008. The Disaster Management Cycle.
- Welman J. C. and Kruger S. J. 2005. *Research methodology*, 2<sup>nd</sup> ed. Oxford: University Press.
- White C. J. 2003. *Research: An Introduction for Educators*. Pretoria:
- Wiener, N. 1948. *Cybernetics: On Control and Communication in The Animal and The Machine*. New York, NY: John Wiley & Sons, Inc
- Wisner B., Blaikie P., Cannon T. and Davis I. 2004. *At Risk: natural hazards, people's vulnerability and disasters*. London: Routledge.
- Wisner B., Blaikie P., Cannon T. and Davis I. 2006. *At Risk*. 2<sup>nd</sup> ed. London: Routledge.
- World Bank. 2018. IFRC World Disasters Report: Leaving No One Behind. Geneva: *International Federation of Red Cross and Red Crescent Societies*.
- World Bank. 2020. IFRC World Disasters Report: Tackling the humanitarian impacts of climate crisis together. Geneva: *International Federation of Red Cross and Red Crescent Societies*.
- Wyse S. E. 2011. *What is the difference between qualitative research and quantitative research?* quantitative-research,
- Yang J. and Yi H. 2014. Research trends of post disaster reconstruction: the past and the future. *Habitat International*, (42): 21–29.
- Ye Y. and Okada N. 2002. Integrated Relief and Reconstruction Management following a Natural Disaster. Paper presented at the Second Annual IIASA-DPRI Meeting, *Integrated Disaster Risk Management: Megacity Vulnerability and Resilience*. IIASA, Laxenburg, Austria 29-31 July 2002, 1–18.

## APPENDIX A: Information Letter



### LETTER OF INFORMATION

## Assessing the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in KZN: UThukela District Municipality

Dear Respondent

You are herewith invited to participate in an academic research study conducted by **Kwethemba Innocent Phungula**, student number: **20356413**, currently studying towards **Master's Degree of Management Sciences in Public Administration specializing in Disaster Management at Durban University of Technology (DUT)**. I would appreciate your participation in completing this questionnaire.

The purpose of the study is to investigate the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in uThukela District Municipality in order to influence disaster management policies and strategies for housing recovery, taking into consideration of an impact of housing rehabilitation and reconstruction measures and funding allocated to respond to disasters. This research may have a positive impact on delivery of government rehabilitation and reconstruction programmes, thereby creating stronger links between affected communities, government and provision of post-disaster housing recovery.

Kindly be assured that your identify will remain anonymous and your information be treated as confidential, it will only be used for the purpose of this research. Your participation in this study is voluntary and very important to us. You may however choose not to participate and you may also withdraw from the study at any time without any negative consequences.

If you agree to take part in the study, you will be required to do the following:

- To read the questionnaire;
- To respond to the questions regarding the effectiveness of housing reconstruction and rehabilitation interventions funded to respond to disasters

Kindly note that the entire process should take about 15-20 minutes of your time. Please answer the questions in the attached questionnaire as completely and honestly as possible. The results of the study will be used for academic purposes only and may be published in an academic journal if necessary. We will provide you with a summary of our findings on request.

Should you require any questions or comments concerning the study as a whole, please contact me on **Tel: 033 846 9012, Cell: 072 512 8601 and Email: [bhekihungula90@gmail.com](mailto:bhekihungula90@gmail.com)** or contact my supervisor, Dr Maliga Reddy, 031 373 5612, email: [reddy@dut.ac.za](mailto:reddy@dut.ac.za) or the Institutional Research Ethics administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or [dvctip@dut.ac.za](mailto:dvctip@dut.ac.za). Please sign below to indicate your willingness to participate in the study.

Yours Sincerely

KIB Phungula (Mr)

## APPENDIX B: Consent Form



### CONSENT

#### Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, **Kwethemba Innocent Bhekizizwe Phungula** (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: 48/17 FREE
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

NESSIN BIYELA  
Full Name of Participant  
Thumbprint

04/09/2020  
Date

12h21  
Time

Signature / Right

I, **Kwethemba Innocent Bhekizizwe Phungula** (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

KWETHEMBA I. PHUNGULA  
Full Name of Researcher

08/09/2020  
Date

Signature

WINNIE NDIYI  
Full Name of Witness (If applicable)

08/09/2020  
Date

Signature

Full Name of Legal Guardian (If applicable) Date

Signature

## APPENDIX C: Ethics Approval Letter



### MANAGEMENT SCIENCES: FACULTY RESEARCH ETHICS COMMITTEE (FREC)

07 June 2017

Student No: 20356413

FREC No: 48/17FREC

Dear Mr KI Phungula

#### MASTERS OF MANAGEMENT SCIENCES: PUBLIC MANAGEMENT

**TITLE: Assessing the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in KZN (UTHukela District Municipality)**

Please be advised that the FREC Committee has reviewed your proposal and the following decision was made: Ethical Level 2.

Approval has been granted for a period of two years, after which you are required to apply for safety monitoring and annual recertification. Please use the form located at the Faculty. This form must be submitted to the FREC at least 3 months before the ethics approval for the study expires.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the FREC according to the FREC SOP's. Please note that ANY amendments in the approved proposal require the approval of the FREC as outlined in the FREC SOP's.

Yours Sincerely

Prof JP Govender  
Deputy Chairperson: FREC

## APPENDIX D1: STRUCTURED INTERVIEW QUESTIONS – COMMUNITY

**AIM OF THE STUDY:** ASSESSING THE EFFECTIVENESS OF HOUSING REHABILITATION AND RECONSTRUCTION MEASURES FOR DISASTER AFFECTED COMMUNITIES IN KZN: UTHUKELA DISTRICT MUNICIPALITY

### SECTION A: BIOGRAPHICAL DATA

#### Instructions:

- Please read through each statement carefully before giving your opinion. For each of the following statements/questions, please indicate your selected answer with an "X."

#### 1. Please indicate the age group that you belong to

Between 20 and 30 years	Between 31 and 40 years	Between 41 and 50 years	Between 51 years and older
1	2	3	4

#### 2. How long have you been residing in this area?

Between 1 and 5 years	Between 5 and 10 years	Between 10 and 15 years	Between More than 16 years
1	2	3	4

#### 3. Current type of Housing

Informal Shack dweller	1
Mud House	2
Formal Brick house	3
Municipal Rental Stock	4
Backyard dweller	5
Private Rental	6

#### 4. Employment Status

Full-time employed	1
Self Employed	2
Part-time employed	3
Unemployed	4

#### 5. Number of occupants

1-3	4-6	7-9	10-12	13 and above
01	02	03	04	05



## SECTION B: DISASTER MANAGEMENT POLICIES AND LEGAL FRAMEWORKS IMPLEMENTED DURING POST-DISASTER HOUSING REHABILITATION AND RECONSTRUCTION

6. Do you know of any municipal policies responding to post-disaster housing reconstruction?

Yes	No
1	2

- 6.1 If yes, do you think municipal policies are effective in responding to post-disaster housing reconstruction?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

- 6.2 Please provide comments in respect to the above answer

.....

.....

.....

## SECTION C: IMPACT OF DISASTER FUNDING ON THE LIVING CONDITIONS OF THE AFFECTED COMMUNITIES DURING POST DISASTER PHASE

7. Describe the nature of the home or place where you are currently staying?

Owner	Renting	Sharing	Other (Specify)
1	2	3	4

8. How do you rate your living conditions?

Poor	Good	Very Good	Excellent	Don't know
1	2	3	4	5

9. Was your family affected by disaster incident occurred in recent years?

Yes	No
1	2

10. What type of housing assistance was provided post disaster?

Building Material	Temporal shelter	Permanent House	Compensation	None
1	2	3	4	5

- 10.1 How long did it take for the Department of Human Settlements to provide post-disaster housing rehabilitation and reconstruction?

Less than 1 month	1 month	3 months	6 months	1 year	2 years	3 years	4 years	5 years	More than 6 years
1	2	3	4	5	6	7	8	9	10

11. In your opinion, do you think post-disaster housing rehabilitation and reconstruction interventions are effectively addressing housing needs of affected communities?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

Please provide comments in respect to the above answer

.....

.....

.....

## SECTION D: HOW GOVERNMENT PROVIDE RESPONSE AND RECOVERY MEASURES FOR DISASTER AFFECTED COMMUNITIES?

12. What type of disaster relief was provided by the municipality to affected communities?

Blankets	Tents	Plastic Sheeting	Mattresses	Food	None
1	2	3	4	5	6

13. How long does it take for disaster management to provide immediate response after incident?

6 hrs	12 hrs	24 hrs	72 hrs	1 Week	2 Weeks	3 weeks	1 months	3 months	6 months	None
1	2	3	4	5	6	7	8	9	10	11

## SECTION E: CHALLENGES IN POST DISASTER HOUSING REHABILITATION AND RECONSTRUCTION

14. What are critical challenges experienced during post-disaster housing rehabilitation and reconstruction?

.....

.....

.....

.....

15. Provide comments on how government could improve feedback on post disaster housing rehabilitation and reconstruction.

.....

.....

.....

.....

16. Please provide comments on the quality of houses built through post disaster housing rehabilitation and reconstruction.

.....

.....

.....

.....

17. Please rate the level of satisfaction?

Poor	Good	Very Good	Excellent	Don't know
1	2	3	4	5

17.1 Provide comments on the above rating

.....

.....

.....

18. In your view, is community involvement critical during post-disaster housing reconstruction and reconstruction?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

18.1 If strongly agree or agree, specify what could be the role of the community:

.....

.....

.....

.....

19. What are your recommendations to government in improving post disaster housing rehabilitation and reconstruction?

.....

.....

.....

Thanks very much for your help and co-operation!

## APPENDIX D2: RESEARCH QUESTIONNAIRE – DISASTER MANAGEMENT OFFICIALS

**AIM OF THE STUDY:** ASSESSING THE EFFECTIVENESS OF HOUSING REHABILITATION AND RECONSTRUCTION MEASURES FOR DISASTER AFFECTED COMMUNITIES IN KZN: UTHUKELA DISTRICT MUNICIPALITY

### SECTION A: BIOGRAPHICAL DATA

#### Instructions:

- Please read through each statement carefully before giving your response. For each of the following statements/questions, please indicate your selected answer with an "X."

#### 1. Please indicate the age group that you belong to

Between 20 and 30 years	Between 31 and 40 years	Between 41 and 50 years	Between 51 years and older
1	2	3	4

#### 2. What is your current position in the Disaster Management Centre?

Fire Officer and below	
Disaster Management Officer	
Deputy Director	
Manager	
Head of the Centre	
Director and above	

#### 3. Period of service in the Disaster Management Centre?

Between 1 and 5 years	Between 5 and 10 years	Between 10 and 15 years	Between More than 16 years
1	2	3	4

#### 4. What is your highest education qualification?

Matric/ NSC	Higher Certificate	Diploma	B Degree	PG Dip/Honours	Masters	Doctorate	Other
1	2	3	4	5	6	7	8

#### 5. Period engaged in dealing with post disaster housing rehabilitation and reconstruction?

Between 1 and 5 years	
Between 5 and 10 years	
Between 10 and 15 years	
Between 15 and 20 years	
More than 20 years	

## SECTION B: DISASTER MANAGEMENT POLICIES AND LEGAL FRAMEWORKS IMPLEMENTED DURING POST-DISASTER HOUSING REHABILITATION AND RECONSTRUCTION

6. Has your organization established a dedicated focal point to deal with post disaster housing rehabilitation and reconstruction projects?

Yes	No
1	2

7. Does your organisation have a disaster management plan

Yes	No
1	2

7.1 If yes, when was the plan approved? .....

7.2 If no, why the plan has not been developed?

.....

8. Does the disaster management plan incorporates emergency housing recovery strategies?

Yes	No
1	2

8.1 If yes, do you think the plan is effective?

.....

9. Does your organisation has developed a disaster management policy framework?

Yes	No
1	2

9.1 Does the framework outline the importance of post disaster housing reconstruction?

Yes	No
1	2

10. In your view, is the policy framework adequately addressing challenges of post disaster housing rehabilitation and reconstruction?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

10.1 If strong disagree and disagree, what could be the policy and institutional challenges affecting implementation?

.....

.....

.....

## SECTION C: IMPACT OF DISASTER FUNDING ON THE LIVING CONDITIONS OF THE AFFECTED COMMUNITIES DURING POST-DISASTER PHASE

11. Do you think your organisation has a statutory responsibility to budget for emergency housing recovery?

Yes	No
1	2

11.1 In your opinion, does your organisation make adequate budget provision to finance emergency housing recovery?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

Please provide comments in respect to the above answer

.....

.....

.....

**12. Do you think funding has direct impact on effective delivery of post disaster housing reconstruction?**

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

**12.1 Please provide comments in respect to the above answer**

.....

.....

.....

**13. What is your view on current national funding model for post-disaster housing rehabilitation and reconstruction?**

.....

.....

.....

#### SECTION D: HOW GOVERNMENT PROVIDE RESPONSE AND RECOVERY MEASURES FOR DISASTER AFFECTED COMMUNITIES?

**14. What type of disaster relief is provided by your institution to disaster affected communities?**

Blankets	Tents	Plastic Sheeting	Mattresses	Food	Temporal Shelter	Other
1	2	3	4	5	6	7

**15. What is the standard turnaround time for immediate response after incident**

30 mins	1 hr	2 hrs	3 hrs	4 hrs	5 hrs	6 hrs	7 hrs	12 hrs	24 hrs	72 hrs
1	2	3	4	5	6	7	8	9	10	11

**16. What type of accommodation is provided by your organisation, immediately after people have been displaced due to disaster incidents**

No Provision	Municipal Facilities	Tents	Emergency Shelter	Other (Specify)
1	2	3	4	5

**16.1 Provide comments on the effectiveness of disaster relief measures provided by municipalities or government departments?**

.....

.....

.....

17. In your opinion, do you think emergency housing interventions are effectively addressing the needs of the affected communities?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

17.1 Provide comments on the effectiveness of post disaster housing interventions

.....

.....

.....

18. Do you think the community has a significant role to play during post-disaster rehabilitation and reconstruction phase?

Yes	No
1	2

18.1 Comment on the feedback received from the affected community post-disaster housing rehabilitation and reconstruction.

.....

.....

.....

## SECTION E: CHALLENGES IN POST DISASTER HOUSING REHABILITATION AND RECONSTRUCTION

19. In your view, is the project implementation process closely monitored by municipalities and affected sector?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

19.1 If strong disagree and disagree, how can the situation be improved?

.....

.....

.....

20. What mechanisms are currently used to monitor the implementation of housing recovery projects by Human Settlements? Please mark X next to the answer/s

Field/ Site visits	
Contractors' reports	
Sector / Stakeholder meetings	
Regular Reports	

20.1 Do you think these mechanisms are effective?

Yes	No
1	2

20.2 Provide comments for consideration

.....

.....

21. Do you think communication protocol for post-disaster recovery between the Department of Human Settlements, PDMC, disaster management practitioners and affected communities is effective?

Not Effective	Partially Effective	Very Effective
---------------	---------------------	----------------

1	2	3
---	---	---

22.1 If not effective or partially effective, what can be done to improve the situation?

.....

.....

.....

22. Provide comments on the quality of houses built through post disaster housing reconstruction?

.....

.....

.....

23. Is the Department of Human Settlements implementing disaster rehabilitation and reconstruction projects in line with policy requirements?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

23.1 If strongly disagree or disagree, specify:

.....

.....

.....

24. Comment on challenges experienced in the implementation of post- disaster housing rehabilitation and reconstruction programs?

.....

.....

.....

25. Provide recommendations to overcome the challenges identified in your response above.

.....

.....

.....

## SECTION F: GUIDING FRAMEWORK FOR POST DISASTER HOUSING RECONSTRUCTION

26. In your opinion, is there a framework that guides post disaster housing rehabilitation and reconstruction in KZN?

Yes	No
1	2

26.1 If No, do you think it is essential for the Province to have a standardised framework for post disaster housing rehabilitation and reconstruction?

Not important	Important	Very important
1	2	3

26.2 Comment on the importance of a guiding framework for post disaster housing rehabilitation and reconstruction.

.....

.....



.....

27. Do you think it is necessary for municipalities to develop policies responding to emergency housing as part of contingency planning?

Yes	No
1	2

28. Do you think the framework should include the following critical features for the development of post-disaster housing reconstruction? Please tick appropriate feature.

<b>Planning:</b>	<b>Short-Term Emergency Housing Interventions</b>	
	<b>Medium to long term housing recovery</b>	
	<b>Funding requirements</b>	
<b>Institutional Capacity:</b>	<b>Requirements for Institutional Capacity</b>	
	<b>Role of Critical Stakeholders</b>	
	<b>Communication Protocol for Housing Recovery</b>	
<b>Coordination and Support:</b>	<b>SOP for Post Disaster Housing Recovery</b>	
<b>Monitoring and Evaluation:</b>	<b>Monitoring and Reporting Mechanisms</b>	
<b>Others:</b>		

29. In your view, what are the benefits of having a standardised provincial framework for post-disaster housing rehabilitation and reconstruction?

.....

.....

.....

.....

.....

.....

Thanks very much for your help and co-operation!

## APPENDIX D3: INTERVIEW GUIDE– DEPARTMENT OF HUMAN SETTLEMENTS

**AIM OF THE STUDY:** ASSESSING THE EFFECTIVENESS OF HOUSING REHABILITATION AND RECONSTRUCTION MEASURES FOR DISASTER AFFECTED COMMUNITIES IN KZN: UTHUKELA DISTRICT MUNICIPALITY

### SECTION A: BIOGRAPHICAL DATA

#### Instructions:

- Please read through each statement carefully before giving your opinion. For each of the following statements/questions, please indicate your selected answer with an "X."

#### 1. Please indicate the age group that you belong to

Between 20 and 30 years	Between 31 and 40 years	Between 41 and 50 years	Between 51 years and older
1	2	3	4

#### 2. What is your current position in the Department?

Project Officer	
Assistant Director	
Deputy Director	
Director	
Chief Director and Above	

#### 3. Period engaged in dealing with post disaster housing rehabilitation and reconstruction?

Between 1 and 5 years	
Between 5 and 10 years	
Between 10 and 15 years	
Between 15 and 20 years	
More than 20 years	

#### 4. What is your highest education qualification?

Matric/NSC	Higher Certificate	Diploma	B Degree	PG Dip/Honours	Masters	Doctorate	Other
1	2	3	4	5	6	7	8

## SECTION B: DISASTER MANAGEMENT LEGISLATIVE & POLICY FRAMEWORK IMPLEMENTED DURING POST-DISASTER HOUSING REHABILITATION AND RECONSTRUCTION

5. Is it necessary for the Department of Human Settlements to establish a focal point to coordinate disaster housing rehabilitation and reconstruction?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

6. Has your department established a dedicated disaster management unit to deal with post-disaster housing rehabilitation and reconstruction projects?

Yes	No
1	2

- 6.1 If yes, provide comments on functionality of the unit. If no, what are your comments on the establishment of such?

.....

.....

7. Do you think it is essential for the department to develop disaster housing recovery plan for implementation of disaster housing reconstruction projects?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

8. Does your department have a disaster management plan which incorporates housing recovery strategies?

Yes	No
1	2

- 8.1 If yes, do you think the plan is effective, If no, why has the plan not been developed?

.....

.....

9. Does your department have an operational plan to deal with emergency housing for disaster eventualities?

Yes	No
1	2

- 9.1 If yes, do you think the operational plan is effective, if no, why has the plan not been developed?

.....

.....

10. Does your department have an internal policy which guides the implementation of disaster housing rehabilitation and reconstruction?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

- 10.1 If the answer is 4 or 5, do you think the existing policy is responding swiftly to disaster housing reconstruction?

.....

.....

.....

- 10.2 If the answer is 1 or 2, what are your views on challenges relating to the implementation of the policy?

.....

.....

.....

10.3 Provide comments on how to improve coordination of disaster housing rehabilitation and reconstruction?

.....

.....

.....

# SECTION C: IMPACT OF DISASTER FUNDING ON THE LIVING CONDITIONS OF THE AFFECTED COMMUNITIES POST-DISASTER PHASE

11. In your opinion, does your department make provision in the budget for swift response to disaster housing needs?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

Please provide comments in respect to the above answer

.....

.....

.....

12. Do you think funding has direct impact on effective delivery of disaster housing reconstruction?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

Please provide comments in respect to the above answer

.....

.....

.....

13. Did your department receive rehabilitation and reconstruction funding for 2011/2012 flood disasters from National Treasury?

Yes	No
1	2

14. Do you think funding for post-disaster housing rehabilitation and reconstruction was effectively utilised to response to housing needs of affected communities?

Yes	No
1	2

15. What is your view on current national funding model for post-disaster housing rehabilitation and reconstruction?

.....

.....

.....

# SECTION D: HOW GOVERNMENT PROVIDE RESPONSE AND RECOVERY MEASURES FOR DISASTER AFFECTED COMMUNITIES?

16. What type of housing interventions are provided by your department, immediately after disaster has occurred?

Emergency Shelter	Temporal Shelter	Temporal Housing	Permanent Housing	Other (Specify)
1	2	3	4	5

17. As selected from above interventions, what is the standard turnaround time for response and recovery?

None	6hrs	12 hrs	24 hrs	72 hrs	5 days	30 days	3 months	6 months	12 months	24 months	More than 24 months
0	1	2	3	4	5	6	7	8	9	10	11

18. In your opinion, do you think disaster housing interventions are effectively addressing the needs of the affected communities?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

- 18.1 Please provide comments in respect to the above answer

.....

.....

19. Is your department experiencing challenges with implementation of post-disaster housing reconstruction?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

- 19.1 Please provide comments in respect to the above answer

.....

.....

.....

20. Is the Department of Human Settlements implementing disaster rehabilitation and reconstruction projects in line with policy requirements?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

- 20.1 If strongly disagree, specify:

.....

.....

.....

21. How would you rate the resilience of housing infrastructure, post rehabilitation and reconstruction, should there be a recurrence of disasters?

Very Poor	Poor	Good	Excellent
1	2	3	4

22. Does your department involve the community during the implementation of post-disaster housing rehabilitation and reconstruction projects?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

- 22.1 What is the role of the community during post-disaster housing rehabilitation and reconstruction?

.....

.....

.....

23. Does your department prioritise economic development opportunities for local communities through post-disaster housing rehabilitation and reconstruction projects?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

- 23.1 Please provide comments in respect to the above answer

.....

.....

## SECTION E: CHALLENGES IN POST DISASTER HOUSING REHABILITATION AND RECONSTRUCTION

24. In your view, was the project implementation process closely monitored by all affected sectors?

Strongly disagree	Disagree	No opinion	Agree	Strongly agree
1	2	3	4	5

- Please provide comments in respect to the above answer

.....

.....

25. What is your view on communication mechanism on post-disaster recovery projects between the department, disaster management practitioners and affected communities?

Not Effective	Partially Effective	Very Effective
1	2	3

- If not effective or partially effective, what can be done to improve the situation?

.....

.....

26. Provide comments on the quality of houses built through post-disaster housing reconstruction?

.....

.....

.....

27. Does your department make use of external contractors in post-disaster housing rehabilitation and reconstruction projects?

Yes	No
1	2

28. Do these contractors have necessary capacity to manage complex projects?

Yes	No
1	2

- 28.1 Provide comments on the capacity of contractors

.....

.....

.....

29. What is the level of technical competence of contractors for post-disaster housing rehabilitation and reconstruction programme?

Very Poor	Poor	Good	Excellent
1	2	3	4

- 29.1 If very poor or poor, how can this situation be improved?

.....

.....

30. In your view, what could be challenges experienced by the Department of Human Settlements in implementation of post-disaster housing rehabilitation and reconstruction projects?

.....

.....

.....

31. Provide recommendations to overcome challenges identified in your response above.

.....

.....

.....

## SECTION F: GUIDING FRAMEWORK FOR POST DISASTER HOUSING RECONSTRUCTION

32. Are you aware of any existing framework for post-disaster rehabilitation and reconstruction?

Yes	No
1	2

- 32.1 If no, do you think it is essential to have a standardised framework for disaster housing reconstruction?

Not important	Important	Very important
1	2	3

33. Do you think the framework should include the following critical features for the development of disaster housing reconstruction? Please tick appropriate features

Planning:	Short-Term Emergency Housing Interventions	
	Medium to long term housing recovery	
	Funding requirements	
Institutional Capacity:	Requirements for Institutional Capacity	
	Role of Critical Stakeholders	
	Communication Protocol for Housing Recovery	
Coordination and Support:	SOP for Post Disaster Housing Recovery	
Monitoring and Evaluation:	Monitoring and Reporting Mechanisms	
Others:		

**34. In your view, what are the benefits of having a standardised framework to improve disaster housing rehabilitation and reconstruction?**

.....

.....

.....

.....

.....

**Thanks very much for your help and co-operation!**



## APPENDIX E: Certification of Language Editing

Dr Carolyn Turnbull-Jackson

89 J.B.Marks Rd

Glenwood

Durban

0836989557

[carolyntj@telkomsa.net](mailto:carolyntj@telkomsa.net)

**Declaration of Editing of a Dissertation for the Degree Of Master of Management Sciences: Public Administration specialising in Disaster Management titled: Assessing the Effectiveness of Housing Reconstruction and Rehabilitation Measures for Disaster Affected Communities in KZN(Uthukela District Municipality)**

I hereby declare that I carried out language editing of the above by Kwethemba Innocent Phungula, student number 20356413.

I am a professional writer and editor with many years of experience. I specialise in Social Sciences and Humanities ' editing – but am adept at editing in many different subject areas.

Yours sincerely

Carolyn Turnbull-Jackson (D.Ed)

February 2021

## APPENDIX F: Turnitin Similarity Report

### ASSESSING THE EFFECTIVENESS OF HOUSING RECONSTRUCTION AND REHABILITATION MEASURES FOR DISASTER AFFECTED COMMUNITIES IN KZN (UTHUKELA DISTRICT MUNICIPALITY)

#### ORIGINALITY REPORT

<b>14%</b>	<b>10%</b>	<b>4%</b>	<b>4%</b>
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

#### PRIMARY SOURCES

<b>1</b>	<b>usir.salford.ac.uk</b> Internet Source	<b>2%</b>
<b>2</b>	<b>Submitted to University of the Free State</b> Student Paper	<b>1%</b>
<b>3</b>	<b>Developing Disaster Resilient Housing in Vietnam Challenges and Solutions, 2016.</b> Publication	<b>1%</b>
<b>4</b>	<b>hdl.handle.net</b> Internet Source	<b>1%</b>
<b>5</b>	<b>Submitted to Regenesys Business School</b> Student Paper	<b>1%</b>
<b>6</b>	<b>www.yumpu.com</b> Internet Source	<b>1%</b>
<b>7</b>	<b>docplayer.net</b> Internet Source	<b>&lt;1%</b>

dspace.nwu.ac.za

8	Internet Source	<1 %
9	researchspace.ukzn.ac.za Internet Source	<1 %
10	"Reflections on African Cities in Transition", Springer Science and Business Media LLC, 2020 Publication	<1 %
11	uir.unisa.ac.za Internet Source	<1 %
12	Submitted to TechKnowledge Student Paper	<1 %
13	Bilau, Abdulquadri Ade, Emlyn Witt, and Irene Lill. "A Framework for Managing Post-disaster Housing Reconstruction", Procedia Economics and Finance, 2015. Publication	<1 %
14	Submitted to University of South Africa Student Paper	<1 %
15	apo.org.au Internet Source	<1 %
16	citeseerx.ist.psu.edu Internet Source	<1 %
17	ameba.lpt.fi Internet Source	<1 %

## APPENDIX G: Permission Letter

P.O. BOX 11888  
DORPSPRUIT  
3206  
18/01/2019

**Dear Sir/Madam**

### **RE: LETTER TO SEEK PERMISSION TO CONDUCT RESEARCH**

My name is Kwethemba Innocent Phungula, student number: 20356413, currently studying towards Master's Degree in Management Sciences: Public Administration at Durban University of Technology (DUT). Currently, I work for KZN COGTA, Provincial Disaster Management Centre as a Deputy Director: Disaster Management Operations.

The study area is: *Assessing the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in KZN: UThukela District Municipality (Tholeni Area in Alfred Duma Local Municipality)*

The purpose of the study is to investigate the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in uThukela District Municipality in order to influence disaster management policies and strategies for housing recovery, taking into consideration of the impact of housing reconstruction and rehabilitation measures and funding allocated to respond to disasters. This research would have a positive impact on delivery of government reconstruction and rehabilitation programmes, thereby creating stronger links between affected communities, government and provision of post-disaster housing recovery. The study would further propose a guiding framework which will assist disaster management practitioners, Department of Human Settlements and other key role players to enhance the implementation of post-disaster housing reconstruction.

I would like the Department of Human Settlements to grant me permission to conduct interviews with key senior officials who are dealing with post-disaster housing reconstruction at provincial level and district level. I would be appreciated if a written letter granting the approval could be emailed: to [bhekiphungula90@gmail.com](mailto:bhekiphungula90@gmail.com). For clarity, my contact number is 072 512 8601.

Kind Regards

**Mr Kwethemba Innocent Phungula**

## APPENDIX H1: Gate Keepers Letter: KZNDHS



**KWAZULU-NATAL PROVINCE**

**HUMAN SETTLEMENTS**  
REPUBLIC OF SOUTH AFRICA

**DIRECTORATE**

**SPECIAL PROJECTS**

Private Bag X 9157, Pietermaritzburg, 3200  
Old Mutual Building, 203 Church Street, Pietermaritzburg 3201

**Tel.** +27 33 392 6400

**Fax.** +27 33 3926454/57

[www.kzndhs.gov.za](http://www.kzndhs.gov.za)

**Dear Mr K. Phungula**

### **RE: REQUEST TO CONDUCT RESEARCH**

This correspondence serves to confirm that you have been granted permission to conduct research by the KZN Department of Human Settlements on the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in KZN: UThukela District Municipality (Tholeni Area in Alfred Duma Local Municipality).

The Special Project Unit with the Department is dealing with post-disaster housing projects and it will assist you with relevant information as well as interviews for completion of your study. I will also direct your request to the Director responsible for the unit for information and further assistance.

We wish you all the best with your studies towards improving service delivery of post-disaster housing programme within KZN Province.


Yours Faithfully

Mr M.O.S. Zungu  
Head of Department: KZN Human Settlements

27 January 2019

Date

## APPENDIX H2: Gate Keepers Letter: UThukela District Municipality



*Social and Economic Services Department*

P O Box 116  
33 Forbes Street  
LADYSMITH 3370  
Tel (036) 638 2400  
Fax (036) 635 5501

Fax2email 086 695 6314  
[bongah@uthukeladm.co.za](mailto:bongah@uthukeladm.co.za)

22 November 2016

Dear Mr. Phungula

**RE: REQUEST TO CONDUCT RESEARCH**

This serves to confirm that you have been granted permission by the UThukela District Municipality to conduct your research on the effectiveness of housing reconstruction and rehabilitation measures for disaster affected communities in KZN (UThukela District Municipality).

Wishing you all the best for your studies.

Yours Sincerely

BS Hlomuka  
Disaster and Customer Care Manager