MEASURING RESILIENCE IN SOMALIA: AN EMPIRICAL APPROACH

by

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DECLARATION

I declare that “MEASURING RESILIENCE IN SOMALIA: AN EMPIRICAL APPROACH” is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.

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Signature 

Date: 3 November 2019

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ABSTRACT

The objectives of this study were to build an understanding of the concept of resilience and provide an empirical method of measuring resilience using food security as a case study. This was carried out in three locations (rural, town and the internally displaced camps) of Luuq District in Somalia. The research was conducted through a mixed research methodology that involved both quantitative and qualitative methods. In the quantitative study, 390 individual household questionnaires were administered, and the qualitative aspects involved focus group discussions and key informant interviews. In total 12 key informants were interviewed while 10 FGDs were conducted in selected villages in the district. The study made seven findings. First validating that resilience and vulnerability are not antonyms but are both useful terms in the humanitarian aid and development discourse. Secondly, that the previous attempts to measure resilience lacked direction; agreement and they were devoid of resilience metrics. The validity of resilience measures was not acceptable, and it was demonstrated that the majority of the respondents did not feel that they had attained resilience or were on a path of achieving it. Thirdly, the effectiveness and relevance of resilience measures was location dependant and in-turn linked to the security of the location. Fourth, that though there was little appetite to improve resilience measurement, the FAO-SHARP method came close to considering most of the aspects of resilience. Fifth, that implementing resilience in fragile locations called for innovation for effectiveness. Sixth, that while there were clear improvements needed on resilience measures though there was little appetite to change due to cost barriers. Lastly, the study synthesised subjectivity as a potential measure of resilience capacities and three questions that potentially measure resilience were recommended for further scrutiny. The major recommendation is that effective resilience building and measuring efforts are context specific and unique and the consideration of such is important for the validity of measures and impact of implementation.

Key words: Resilience, food insecurity, socio–ecological systems, development, fragile contexts, vulnerability, mixed method research.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACCRA	Africa Climate Change Resilience Alliance
ACCCRN	Asian Cities Climate Change Resilience Network
AfDB	African Development Bank
AIACC	Assessments of Impacts and Adaptations of Climate Change
ARCAB	Action Research for Community Action
BRACED	Building Resilience and Adaptation to Climate Extremes and Disasters
BRICS	Building Resilient Communities in Somalia
CCRAM	Conjoint Community Resiliency Assessment Measure
CD-RISC	Connor – Davidson Resilience Scale
CoBRA	Community Based Resilience Alliance
CRiSTAL	Community-based Risk Screening Tool
CRS	Catholic Relief Services
CVCA	Capacity Vulnerability and Capacity Analysis
DANIDA	Denmark's Development Cooperation
DEC	Disaster Emergency Committee
DEVCO	International Cooperation and Development
DFATD	Department of Foreign Affairs, Trade and Development
DFAT	Department of Foreign Affairs and Trade
DFID	Department for International Development
DRR	Disaster Risk Reduction
EC	European Commission
ECHO	European Commission Humanitarian Aid
EU	European Union
FAO	Food and Agriculture Organization
FFP	Food for Peace
FGD	Focus Group Discussion
FSNAU	Food Security and Nutrition Analysis Unit
GDP	Gross Domestic Product
GIS	Geographic Information System
HH	Household
HoA	Horn of Africa
IDP	Internally Displaced Person
IDRC	International Development Research Centre
IFRC	International Federation of Red Cross and Red Crescent Societies
IGAD	Intergovernmental Authority for Development
IISD	International Institute for Sustainable Development

IPCC	Intergovernmental Panel on Climate Change
KII	Key Informant Interview
LOTC	Livelihoods Change Over Time
MA	Millennium Ecosystem Assessment
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Cooperation and Development
OFDA	Office of Foreign Disaster Assistance
RIMA	Resilience Index Measurement and Analysis
RISE	Resilience in the Sahel-Enhanced
SDC	Swiss Agency for Development and Cooperation
SHARE	Supporting Horn of Africa's Resilience
SIDA	Swedish International Development Cooperation Agency
SHARP	Self-evaluation and Holistic Assessment of Climate Resilience of farmers and pastoralists
SomRep	Somalia Resilience Program
SPSS	Statistical Package for the Social Sciences
SWB	Subjective Well Being
TAMD	Tracking Adaptation and Monitoring Development
TANGO	Technical Assistance to NGOs
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children’s Fund
UNISDR	United Nations Office for Disaster Risk Reduction
USAID	United States Agency for International Development
WFP	World Food Programme

CHAPTER 1 : INTRODUCTION

1.1 BACKGROUND

Risks are everywhere and are a part of rural life in developing countries. A major change in science in the last few decades has been the recognition that nature is seldom linear and predictable. Processes in ecology, economics and many other areas are dominated by non-linear phenomena and an essential quantity of uncertainty (Berkes, Colding & Folke 2003:5).

The current responses to both climate variability and disaster risk have both positive and negative implications for the security of humanity and its prosperity into the future. Capacity building and increased resilience are examples of the positive outcomes while threats to future sustainability are the negatives (IPCC 2012:450). The other negative issues include the 'levee and silo effects' (Collenteur et al 2015:385) where the current solutions proffered to a problem are seen as ultimate and build the confidence of a population into laxity yet there are at best misleading. This blinds the population from the true position that conditions change and current solutions may be rendered inadequate (IPCC 2012:450). "It is now broadly accepted that the array of shocks that threaten the well-being of vulnerable populations has become more frequent and more pronounced as the stability of systems that define vital features of everyday life have become less predictable. Although shocks and stressors can be observed in both developed and developing countries, the population which resides in less developed settings are subject to more severe and more frequent setbacks emanating from both idiosyncratic and covariate shocks" (Constas and Barrett 2013:1).

In the face of these challenges, it is well known that rural households are practicing a variety of measures to manage risk. However, since such risk management measures are costly and imperfect, risk events such as drought, insecurity and other extreme weather events often cause shocks to households. In some instances, households can mitigate the impact of these shocks by taking various coping behaviours but in some instances, they are not able to do so

leading to them sinking deeper into poverty or becoming victims of calamities.

This study focuses on the topic of “resilience,” which is defined in detail in Chapter Three but broadly describes the ability of an individual, household or community to “bounce better” from a disaster or other hazardous event. Disasters disrupt the fabric of life and are stressors to social systems. Resilience suggests an ability to effectively deal with these stressors. Thus, resilience is concerned with the magnitude of the disturbance that can be absorbed or buffered without the system undergoing fundamental changes in its functional characteristic.

Resilience is an important element of how societies adapt to externally imposed change, such as global environmental change. It is accepted by Berkes, Colding and Folke (2003:14) that the greater the society’s resilience, the greater its ability to absorb shocks and perturbations and its ability to adapt to change. On the other hand, the less resilient the system is, the greater the vulnerability of institutions and societies to cope and adapt to change.

The concept of resilience is a promising tool for analysing adaptive change towards sustainability because it provides a way for examining methodically and in detail how to maintain stability in the face of change. This analysis however is still problematic as what is evident from literature is that certain components of what contributes to resilience can be measured with relative ease and, for the most part, are well established in the academic literature. However, resilience in itself is very difficult to measure.

From a preliminary review, it seems resilience is a little more than an antonym for vulnerability, and as such offers little to conceptually or practically advance the protection and positive adaptation of socially vulnerable populations in disasters. Beyond these basic economic and demographic components, however, there is an implication in literature that resilience is dynamic and includes processes of learning and adaptation, and thus should measure more than just point-in-time economic and demographic attributes of a community (Meyer 2013:2). Scholars though disagree on exactly what dynamic aspects of the community should be

included to fully elaborate the concept of resilience (Miller et al 2010:26; Stokols, Lejano & Hipp 2013:7; Thorén 2014:305; Baxter 2019:245).

There seems to be a general consensus that resilience measurements require a multi-dimensional, multi or mixed research method approach. In using this approach, the benefits include “a more detailed understanding of the dynamic relationships that explain variations in well-being following exposure to shocks and stressors” (Maxwell et al 2015:6).

However, the task of measuring resilience is neither easy nor simplistic. Like other phenomenon, the desire for universality, precision, and rapidity are being demanded of resilience so as to make the concept easily usable, digestible and policy-relevant (Levine 2014:6). It is argued that both qualitative and quantitative approaches should be employed in measuring resilience so as to allow cross tabulation and validation across methods. More scholars add on and argue that “quantitative measures are not only able to summarize such phenomena in recognizable ways, they are also more widely believed to be objective and less subject to the whims and opinion of either the analyst or the population of study” (Maxwell et al 2015:6). The arguments above show that quantitative models alone cannot accurately and adequately capture the understanding or measurement of resilience. Thus, resilience measurements, like most efforts to measure complex phenomena require some multifaceted approaches as they cross traditional boundaries and as such the capture of social interactions, opinions and perceptions are required. However, resilience is yet to be extensively codified or conceptualized, implying that tools of measurement are blunt. The elucidation of resilience calls for a range of quantitative and qualitative measurement techniques to obtain a universal and acceptable measure (Maxwell et al 2015:6).

The response to economic shocks of a household is dependent on the livelihood options available to it. The differences in socio-economic statuses of different household ensure that their response strategies to calamities are different and

may imply different resilience levels. Different intervention strategies are thus important to socio-economic groups (Alinovi et al 2010:3).

As a tradition, the focus of research in food security has been on development and refining of metrics and analytical methods of prediction or accuracy of the likelihood of experiencing future loss of adequate food. However, more recently resilience to food insecurity has been proposed. A “resilience analysis tries to identify the different responses adopted by a household and capture the dynamic components of the adopted strategies. A resilience approach investigates not only how disturbances and change might influence the structure of a system, but also how its functionality in meeting these needs might change” (Alinovi et al 2010:3).

This research applied the resilience approach to the Luuq district in Somalia, which is one of the hunger high spots despite the unavailability of reliable data (von Grebmer et al 2013:14). In the context of Somalia, as anywhere else the concept of resilience is not easily defined, but the current activities being carried out by the aid agencies involve investing in activities that create conditions for socio-economic stability at the household level in the transitory and continual term. It is possible that with more comprehension of the building blocks of resilience at the household level a more “effective combination of short and long-term strategies for delivering households from poverty and hunger and vulnerability can be developed” (UNICEF 2014:1).

1.2 STATEMENT OF THE PROBLEM

According to Schipper and Langstron (2015:9) “the emergence of resilience within the development discourse and the widespread adoption of resilience across programmatic pillars within Non-Governmental Organizations (NGOs) and donor agencies have led to an explosion of resilience-focussed frameworks”. The United States Agency for International Development (USAID), the United Kingdom Department for International Development (DFID), the Canadian International Development Research Center (IDRC), the European Union, the Australian Department of Foreign Affairs, Trade and Development (DFATD), the

World Food Programme (WFP) and the United Nations Children's Fund (UNICEF) are some of the agencies that are of late pursuing resilience building agendas. In parallel, an increasing number of humanitarian and non-governmental bodies including CARE International, Catholic Relief Services (CRS), Mercy Corps, Oxfam, and World Vision, have also adopted resilience as one of their programmatic pillars (Béné et al 2014:599).

While resilience may be an elegant heuristic (no stable or single state equilibrium in a complex system but various forms of transitions) there is a growing concern about how a concept that developed within the natural sciences is being applied to social systems. These questions arise because of the desire to make resilience operational, that is, to design strategies to promote it and frameworks to measure it. Yet measuring the resilience of various systems to diverse shocks and stresses presents its own set of challenges, partly because the term is imbued with sophisticated theoretical assumptions of systems thinking, cross scalar interaction and non-equilibrium dynamics, that are difficult to gauge and evaluate (Bahadur, Wilkinson & Tanner 2015:2).

So far there is no consensus on the definition of resilience even though it is increasingly becoming the ultimate ‘objective’ that development and aid organisations are trying to reach. There are again no mono-dimensional indicators that exist to measure it. Since so many development and aid agencies, and NGOs have now embraced resilience and mention that their objective is to” strengthen the resilience of the poor and vulnerable”, there is now an urgent need to hold them accountable not only for the funding they receive but also for the sake of the aid recipients they serve.

The capacity to measure resilience across sites and using consistent indicators is a method of developing accountability mechanism for NGOs. This is necessary for resource allocation and monitoring of milestones towards resilience. Some of the targets are “set out in global policy frameworks, such as in the Sendai Framework for Disaster Risk Reduction 2015-2030 and the United Nations Sustainable Development Goals” (Schipper & Langston 2015:9), officially known

as Transforming our World: the 2030 Agenda for Sustainable Development. The literature review shows that the development of indicators for resilience has not been organised and as such has resulted in multiple effects that have clouded the results even further primarily due to contested definitions of the term (Mitchell & Harris 2012:3; Winderl 2014:17; Schipper & Langstron 2015:9).

Somalia has been affected by repeated crises linked to political, economic, social and environmental factors that have led to eroded social, institutional and environmental bases of communities rendering them increasingly vulnerable to recurrent shocks. Over time there has been a deterioration of relative wealth and a slowing pace of recovery after shocks. This is despite the implementation of repeated large-scale relief programmes that are often touted as contributing to building resilience. There are a number of international organisations that are implementing various programmes in Somalia and more often these programmes are inclining towards resilience building at least in the way that the donors and the implementers so define.

Joseph (2013:51) argues that the use of the term resilience by international organisations for such things as state building and poverty reduction, has led to overuse to the point of banality. From an academic point of view there is need to measure desired outcomes and at the same time interrogate the resource allocation and governance models that are thought of as resilience building. There is obviously scarcity of verifiable evidence on how households react to the shocks and stresses, as well as how humanitarian and development activities assist in enhancing resilience to those stressors and shocks (Pain & Levine 2012:6). Robinson and Carson (2016:118) raise concerns on the use of the term resilience, that it is often not accompanied by clear statements on what exactly resilience is or what it is being resilient to. Is resilience an ideal standard, can it be prescriptively defined or subjected to empirical testing?

Resilience is a difficult phenomenon “to measure, because shocks are often short-term, unpredictable and often occur in remote places and populations, such as with pastoralists in the Horn of Africa (HoA); and resilience to shocks involves

complex coping or adaptive behaviours, which are diverse and may involve thresholds and qualitative shifts" (vonGrebmer et al 2013:24). This leads to Chandler (2014:63) concluding "resilience thinking intensifies neoliberal understandings of complexity and suggests that neoliberalism still bears the traits of liberal 'hubris' in its contradictory or paradoxical assertions that complex life can be simplified and potentially known by governing power".

1.3 PURPOSE AND OBJECTIVES OF THE STUDY

The purpose of this research is to contribute to building an understanding of the concept of resilience, provide an empirical method of measuring resilience using food security as a case study in the context of Somalia and proposes a framework leaning on subjectivity that addresses some of the concerns and limits of resilience measurement that exist and are identified in the literature. The specific objectives of the study are:

- To analyse and understand what resilience is, in relation to vulnerability.
- To build an understanding of the various methods that have been employed to measure resilience.
- To critique the relevance of such methods to the Somali context.
- To assess the appropriateness of current models of resource allocation and governance in Somalia Luuq district with reference to resilience.
- To offer suggestions for a more contextual, critical and valid measure of resilience.
- To inform future areas of study and focus in the resilience forum with respect to the measurement of resilience.

1.4 RESEARCH QUESTIONS

Based on the objectives stated above, the primary research question for this study is:

How valid is resilience building as a concept in development in the context of resilience to food security in Somalia?

The sub-questions of the study include:

- How is resilience different from vulnerability and how are they related?
- What are the previous attempts that have been made to measure resilience that could be applicable in Somalia?
- To what extent have these measures been successful in giving a valid measure on progress on resilience building?
- Are the methods of measuring resilience effective and relevant to the Somali context?
- To what extent does the context of Somalia put into question the current understanding of resilience building?
- What improvements to the current methods can be suggested to make the measurements more effective and included in policy and practice?
- What are the areas that need further research that can improve the way resilience is comprehended and operationalized?

1.5 SIGNIFICANCE OF THE STUDY

The resilience conceptual framework has a potential of providing "a common language across diverse sectoral and disciplinary interests and practically informing high-level strategic agendas. It will do this by providing a language, metaphors, tools of analysis and empirical examples that challenge equilibrium assumptions of the dynamics of change, and management approaches that assume it is still possible to command and control" (Davoudi et al 2012:323). This study will be significant to different audiences as outlined below.

1.5.1 Governments

This research provides important results for advising government policy makers to further address humanitarian needs in developing and fragile context countries. Achieving resilience is now a critical concern for nations at risk and in light of the increasing climate variability including the increasing number of fragile states. It is in this regard that the study gains policy relevance. In generating an understanding of resilience, appropriate policy planning can be integrated into policy instruments to address the structural constraints that inhibit achieving resilience by population groups. Eventually, this will encourage the planning and

implementation of short-term and long-term programs that effectively respond to the immediate needs, especially of Africans who have had to live marginal lives in their own homeland. The understanding of resilience can also assist governments to identify vulnerable areas that need to be strengthened and suggest potential leverage points for intervention. Beyond this, the research can assist governments and local authorities for monitoring effectiveness and efficiency of implementation and measure progress of countries and communities towards becoming more resilient. This can also be effective in disseminating results, enhancing transparency, and improving accountability of local and central authorities. For planning theory and practice, an understanding of the principles of resilience offers “a fundamental questioning of the central tenets of contemporary approaches to planning” (Davoudi et al 2012:312). Resilience assessments furthermore will provide a “planning tool for an integrated assessment of social-ecological systems that accounts for uncertainty, surprise and complex interactions across various spatial and ecological scales” (Davoudi et al 2012:317).

1.5.2 Households and communities

This study will contribute to an understanding of the self-organizing within households and communities, activating capacities already deep-rooted within a community or household (Berkes & Ross 2013:16). With the understanding of how to measure resilience according to Sharifi (2016:630), measurement tools will be used for benchmarking performance of communities or households against peers and best-practice standards. This can be an advantage in that it will instigate competition among communities and peers providing a platform for them to share knowledge and learn lessons from one another. This has the potential of empowering citizens and enhancing their role in decision-making process. In the long run this collaboration may lead to establishment of strong social networks that are deemed to be essential for enhancing resilience.

1.5.3 NGOs/development partners

The recent resilience debates have been useful in rethinking the relationship between aid and crises and have helped the humanitarian and development communities to see their common goal. On the humanitarian front, once managers can operationalize and conceptualise resilience this will result in improved use of comparative assessments of resilience at intervention level. With governments this ability will be utilized in decision-making processes such as resource allocation at the NGO or development level.

1.5.4 Donors

While it is well known that donors have different motivations for providing aid, for many the main rationale is poverty reduction and of late increasing the resilience of communities and households (Radelet 2006:6). As such the ability to measure resilience will have the impact of giving donors evidence on the use of their funds. This will further the intended goals and ensure that their donations or contributions not only have a positive impact, but they position the donors as partners with the organisations and communities they support.

1.5.6 Academia

For academia this research is significant in that it lays down a foundation for further action-research and learning networks that seek to build and maintain resilient socio-ecological systems and also encourage innovation and transformability to achieve sustainability. The academia has work cut out for them to lead the rest of the world in understanding the strategic perspectives that operate within planetary boundaries and do not compromise earth's life support systems (Manring 2014:133; Pisano 2012:22). Finally, for academics the emergence of the concept of resilience will foster a better understanding of the links between shocks, responses and development outcomes (Béné et al 2016:153).

Lastly “good measurement of resilience must be the foundation for early and accurate diagnosis of problems; for mobilising and targeting short-term resources; and for designing, implementing, and evaluating appropriate long-

term resilience building strategies" (Barrett & Headey 2014:10).

1.6 LIMITATIONS AND CHALLENGES OF THE STUDY

The study researched the concept of resilience to food insecurity in Somalia. The study was conducted in the rural, town and Internally Displaced Persons (IDP) camps of Luuq District through sampling households. In the use of the methodology employed in this research, the study experienced some limitations, which are:

- While the research alludes to the broader concept of resilience it must be noted that it was limited to resilience to food insecurity. The results could be much more different if they are extended to a different measure of resilience.
- The results have also been extended to the broader fragile context countries, however this research was only limited to the district of Luuq in Somalia. Even though the country might have some similarities with other fragile countries it must be noted that the Somali fragility is unique to Somalia.
- Most resilience analysis calls for panel data which is obtainable over several years and repeated to the same data set. This study only collected data once and in one season and did not repeat the collection to create panel and longitudinal data.
- The food insecurity in Somalia is not just a natural phenomenon, but rather a combination of factors most of them, human-made. Some of these factors are conflict, political instability and lack of governance, and have undermined traditional coping strategies in response to the natural hazards. As such the results reported are influenced not only by lack of food or little rainfall but also by a myriad of other factors.
- While the results were based on the 2016/17 agricultural year it must be noted that the survey results might also be a compound of the results of the previous years as people often report the occurrence of a drought in the first year it takes place and do not acknowledge subsequent years

even though its effects may be far worse later. Again, droughts develop slowly and as such it becomes difficult to determine exactly when they begin and end.

- Lastly, this thesis is limited to the household as the unit of analysis. The results might be different at a higher level of aggregation and in particular if placed at the community level (clan, village, district).

Somalia presents an opportunity to interrogate resilience due to chronic vulnerability of all livelihood groups; the persistent underdevelopment of systems critical to community and household resilience; and improved security and access due to the presence of the Federal Government, increased United Nations and NGOs access and presence, some availability of services and infrastructure.

1.7 OUTLINE OF THESIS AND CHAPTER CONTENTS

The first chapter provides the reason of the researcher's interest in resilience through providing an introduction to the resilience concept, clarifying the objectives, elaborating on the motivation and identifying the research questions. The chapter introduces the primary research question that is *how valid is resilience building as a concept in development in the context of resilience to food security in Somalia.* The primary research question is then further broken down into secondary research questions that are then pursued in the later chapters as out lined below.

Chapter 2: Context of the study

In Chapter 2, the researcher focuses on describing Somalia, emphasizing on the history of the country and how it has come to be defined as a failed state. The chapter looks at the different development indicators for Somalia including how these compare with the neighbouring countries. This chapter provides insight into the funding models that are currently being used to apportion resources in Somalia and goes further to explore the extent these funding models are building resilience and reducing vulnerability in Somalia. Like the previous chapter, this

chapter is also built from literature and the experiences of the donors that are operational in Somalia.

Chapter 3: Literature review

This chapter scrolls literature putting into record the development of the resilience discourse. In this chapter the researcher introduces the concept of resilience through outlining how it has developed overtime to the point where it is now shaping aid discourse. The chapter explores the historical contours of resilience explaining how the concept has moved from its natural science origins to a widely accepted concept and one to be achieved in many aid programmes. The principal focus of the chapter is on definitions, framing and operationalisation of the concept including the different theories and conceptual frameworks that have been proposed to comprehend resilience. This chapter also discusses the relationship between resilience and vulnerability looking at how the two are either complementary or conflicting. It then goes further to explore the different methodologies that have been employed over time by different entities to measure or comprehend resilience, giving a critique of these methods and also proffering some opinions on subjective methods of measuring resilience that are further explored in the next chapters. In concluding the chapter, the research looks at how the resilience approach has shaped discourse around aid and allocation of resources and how possible that it will continue framing this discourse after replacing most of the buzzwords that have come before it. The literature review is built from sources that include books, peer-reviewed journals, government reports, official international organisations reports, the Internet, unpublished communications and the media. These various sources contributed in laying the foundation and the subsequent theoretical background construction of the research technique.

Chapter 4: Research design and methodology

In keeping with the research questions, Chapter 4 describes and justifies the procedures, methods, and techniques used to assess and explore resilience from the perspective of the communities and other participants in Somalia. This chapter gives a description of mixed methods using qualitative and quantitative

approaches and their suitability for the analysis of the resilience data gathered using the two methods. The chapter also describes the participatory approaches that were employed in the data collection including explaining how these have made data collection more driven by the subjects or participants. The ethical aspects of the research are discussed in the chapter, including issues of data integrity, which are covered under validity and reliability of the research. A critique of each of the methods is also presented giving a balanced view of the research methods that are employed in this study.

Chapter 5: Presentation of results

This chapter is a presentation of the analysis of the primary data collected from the mixed research methods that were employed. The results are presented to account for the research questions. Resilience to food security in the context of Somalia is presented in the viewpoints of Luuq households. The results are used in the subsequent chapters to gain deepen the understanding into how the respondents' resilience to food security could be strengthened, and their response and recovery improved in the longer-term.

Chapter 6: Discussion and conclusion

Chapter 6 draws on preceding chapter, the presentation of the results. It examines resilience in the context of the findings. The chapter seeks to address the study objectives by responding to the research questions set out in chapter 1. The chapter also answers the last two sub-questions which are; *to what extent does the context of Somalia put into question the current understanding of resilience building* and also explores *the gaps that will inform future research initiatives in measuring resilience or vulnerability in Somalia*. The chapter also focuses on demonstrating how the model in the findings might be adopted as a measure of resilience and also as a cross comparison of the attainment of resilience in similar communities and countries. The chapter uses the findings of the research and the empirical evidence from literature to demonstrate how a framework can be used to describe a resilient system and further provide user-friendly measures of resilience to food security.

1.8 CONCLUSION

There are difficulties in comprehending, conceptualising, operationalising and measuring resilience. This is even compounded in the case of countries such as Somalia that have operated without a government for years. This research aims to contribute to building an understanding of the concept of resilience, provide an empirical method of measuring resilience using food security as a case study in the context of Somalia and then proposes a subjective framework that addresses to some extent the concerns and limitations of resilience measurements that are discussed in the literature.

The next chapter focuses on the study area, exploring how the Somali crisis has evolved over time. The chapter explains how the country has been hit by several crises that have "mutated from a civil war in the 1980s, through state collapse, clan factionalism and warlordism in the 1990s, to a globalized ideological conflict in the first decade of the new millennium" (Bradbury & Healy 2010:10). The chapter also argues the choice of Somalia and specifically Luuq district as an ideal place to study the measurement of resilience.

CHAPTER 2 : CONTEXT OF THE STUDY

2.1 INTRODUCTION

Chapter two gives a glimpse of Somalia as a country by giving a brief narration of its troubled history and present. The chapter is focused on giving an understanding of how it got to where it is and how the humanitarian players have operated in the country together with other efforts of promoting peace. The chapter argues that the failure of a number of interventions including the massive investments in humanitarian support is responsible for the shift in the aid architecture and has led to the promotion of resilience building initiatives albeit being driven from the donor side. The chapter shows that Somalia remains in a condition of internal conflict, fragmentation, and complex political humanitarian emergency especially in the South which is caught up in clan-based political factional rivalry and warlordism compounded by fragmented Islamic-based factionalism.

The chapter is divided into six sections with the first part discussing the history of Somalia tracing its origin from the colonial times to the present day. The description then zeros in on Luuq district looking at the clans that exist within Luuq and how the general life is, in the district. The social and economic placement of Somalia in the broader African economic context is discussed in the second part of the chapter with literature showing that the country is still able to have a semblance of a structure despite it being labelled a failed state. The third part discusses the humanitarian interventions that have occurred in Somalia and the complexities of both the peacekeepers and the gatekeepers all competing for space. This section goes further to discuss the funding for resilience showing that despite the response to the 2011 famine in Somalia shifted the aid priorities to resilience, which was lauded as both effective and cost-efficient. The fourth part argues that there is scholarship in the link between resilience and climate induced conflict and traces such evidence in the Horn of Africa and the Sahel region. The fifth section shows how Somalia fits into the accepted category of a fragile state and then the sixth portion argues how this presents a compelling

case for a study such as this one.

2.2 COUNTRY CONTEXT

The setting for this study is the region of Luuq in Somalia a country situated to the North Eastern and HOA. Egypt dominated the area in the 1870's but withdrew in 1884 upon which the British established a protectorate. During the East African campaign (World War II), the protectorate was occupied by Italy in August 1940, but recaptured by the British in March 1941 (Leeson 2007:692). The protectorate gained independence as the state of Somaliland on June 26, 1960. Days later, as a referendum indicated support for unification with Italian Somaliland, it joined with that territory to form a new Somali Republic (Somalia) on July 1, 1960 (Dave-Odigie 2011:63). The country was then ruled by three regimes up to 1990. However, the country plunged into a civil war in January 1991 after the then President was overthrown through a military coup.

The country has suffered from clan led violence that has resulted in the country adopting federalism as a means of achieving peace among the warring factions. Unlike any other federal nation in Africa, federalism in Somalia was adopted to satisfy the needs of different clans and not to respond to the ethnic diversity and recognition of different territorial lands. Somali society is homogenous and during the two-decade long conflict, coexistence of the different clans in most regions of Somalia remained unchanged except in a few places where inter-clan violence escalated (Abubakar 2016:90). Since then there is no central government that controls the entire country, "Somalia has been frequently described using such terms as state failure, fragile context, anarchy, and warlord economy" (Breisinger et al 2014:14).

The country 'formally' known as Somalia is now divided into three parts or segments. These divisions are Somaliland, which is comprised of the north - western section of the country and has without the full blessing of the international community proclaimed self-independence and now known as the "Republic of Somaliland", Puntland is in the north - east and has been somewhat self-governing apparently with some success since 1998. The country however

does not seek recognition as a separate territory from the original Somalia (Breisinger et al 2014:14). The last part is Southern Somalia that is largely under the control of Islamist Al-Shabaab militia, which continues to engage in sporadic fights with the African Union Mission in Somalia, while the capital is under the control of a pro government administration gained with the support of the African Union forces.

Since the start of the civil war, the country has been plagued by a number of calamities that stem from lack of a responsible government. Even in the absence of reliable data it is apparently consistently mentioned as one of the food insecure countries in the world. This premise is driven by the series of famines experienced in the years 1991-92, 2006, 2008 and 2011.

The name Luuq refers to both the town and the district. The district is in the south-western Gedo province of Somalia while the town is on the bend of the Juba River. The district borders Rabdure district and Ethiopia to the North, Berdaale and Wajiid Districts to the East, Garbaharey District to the South and Dolow and Beled Hawa Districts to the West. The district has an estimated geographical area of 8,258 square kilometres and an estimated population of about 97,000. Luuq is mainly inhabited by six dominant clans which are the; Marehan, Dir, Rahanweyn, Sheikhaal, Gasara-Gude and Gabaaweyn clans of which the Marehan are the majority. The Marehan clan control Luuq, with the other clans' political influence being curtailed. The district is also host to internally displaced populations from other districts and regions. The Luuq population is often affected by political instability in Northern Gedo with fighting at times taking place within Luuq town itself. The district has significant trade links and is accessible to humanitarian agencies due to the presence of an airstrip. The livelihoods options of Luuq District are strongly dependant on both land and river potential and as such fishing and irrigated agriculture feature prominently among the main livelihood options. Figure 2.1 shows the location of Luuq in Somalia.

Figure 2-1: Location of Luuq in South Central Somalia

Figure 2.1 shows that Luuq is located to the west of Somalia. Luuq has a hot semi-arid climate. The district climate is characterised by long and extremely hot summers. The winter season is hot and short and the rainfall averages 272 mm, which is low but marginally above desert status. Only 20 per cent of Gedo region can be farmed naturally and of that, 80 percent lies in the fertile areas along the River Juba. The principal economic activities in Gedo are livestock, arable farming and trade with neighbouring regions and countries.

There is a long history to the civil insecurity that is experienced in Luuq and this can be traced back to the formation of the Somalia state and the then leadership of President, Siad Barre. Some of these include inequalities in the distribution of land and water rights that led to clan disaffection. These however seem not enough to explain Somalia's propensity to engage in civil strife. In the midst of this strife and lack of governance, the informal economy has continued to function to the extent of allowing livestock exports. The figures are quite staggering for a country in civil strife as they exported five million livestock in 2015 to the Gulf States. The major source of livelihood in the South of Somalia is

a mixture of crop-based agriculture and pastoralism. This is also the case among urban dwellers among whom regular employment is also a significant source of livelihood (Breisinger et al 2014:15).

2.3 THE SOCIAL AND ECONOMIC SITUATION IN SOMALIA

It must be pointed out that accurate information on Somalia is difficult to find and in some instances, it is contradictory due to lack of robust data collection on the ground as a result of conflict. This is so because according to the UNDP (2012:18) Somalia's clan-based and complicated power dynamics lead to different data opinions.

There is however some form of stability in the North of the country with Somaliland and Puntland establishing some administrations, which at the basics fulfil the functions of government. The South however is still caught up in conflict and remains deeply divided, more because of clan differences. Youth unemployment stands at 67 per cent; feelings of being socially excluded and financially marginalized make young people more vulnerable to recruitment by extremist groups (UNDP 2014:64). According to Menkhaus (2006/2007:359) analysts of the Somalia crisis are divided into two broad camps. One camp emphasizing a disaster on this scale as a predictable product of *forces majeures* based on environmental degradation, demographic pressures, warlordism, ethnic mobilization, external spoilers. A second school of thought stresses the avoidability of the crisis putting it on missed opportunities and miscalculations of leaders and views the disaster not as fate, but as tragedy. Whichever way is used to interpret the situation the country remains deeply troubled and far from achieving any stability and security.

The African Development Bank (AfDB) (2013:2) asserts that Somalia is still characterized by a severe lack of basic economic and social statistics that has been worsened by the two-decade conflict and the resulting collapse of the country's institutions. This is further compounded by "the existence of *de facto* spatial and political entities that results in complex economic realities and exacerbates the issue of data reliability and consistency for Somalia as a whole.

Though difficult to quantify, the GDP of Somalia was estimated at close to US$ 5.8 billion in 2010, with a per capita GDP of US$600" (Breuil & Grima 2014:5). Livestock accounted for about 40% of GDP and more than 50% of export earnings. Besides livestock some of the major exports include sugar, khat (*Cathaedulis*), corn, petroleum products and sorghum (UNDP 2012:25). These figures suggest that Somalia has managed to maintain a reasonably healthy informal economy that is largely based on aid and remittances. Oxfam suggests that, "it is difficult to accurately estimate the total amount of remittances to Somalia. Calculations range from $750 million to $1.6 billion annually, but it is difficult to find documentation to support such estimates" (Oxfam 2013:10). The UNDP (2012:25) adds that on a per capita basis, Somalia is recognised as being among the top remittance recipients in the world. It does appear that in the absence of remittances the economy would have collapsed. The government revenue is meagre and poorly managed therefore insufficient to deliver basic services. The insecurity and absence of a central government in South Central Somalia, coupled with comparatively low levels of international assistance for rehabilitation mean that Somali households are left with no choice but to procure social welfare services from the private sector.

2.4 HUMANITARIAN AID IN SOMALIA

Somalia has a long history of tensions between humanitarian operations and security concerns mainly because the country has been producing large-scale humanitarian crises. The country is not new to large-scale humanitarian crises as they began in the mid-1970s. Ahmed and Herbold (1999:117) argue that the cause of the 1973-1974 crisis was the socialist experiment and perhaps more crucially, the political hostility to an `opposition' area turned the 1974-75 drought into a major famine in the north, resulting in over 20 000 deaths, forcing up to 15% of the entire pastoral population into relief camps. This was followed by the Ogaden War of 1977–78 waged against neighbouring Ethiopia that was calamitous and singled out as the turning point. Menkhaus (2010:322) estimates that the war produced between 300,000 and 400,000 refugees while Ahmed and Herbold (1999:118) assert that by 1979 there were officially 1.3 million refugees

in the country. These refugees were mainly managed by UNHCR and other international NGOs and the support was around the delivery of basic foodstuffs and services (Menkhaus 2010:322). Hitchcock (2007:735) explains that Somalia received United States aid after 1977 mainly due to the cold war polarities, and from the late 1980s cuts in assistance, coterminous both with the waning of the cold war and critical economic difficulties in the United States of America gradually exacerbated the Somalia's state instability. The corrupt Barre government was challenged by insurgency, resulting in greater disruptions of primary government services, which in turn deepened the social impact of disasters like drought and famine. By the time of the overthrow of the Barre regime in 1991, a few external relief agencies had presence or were operating in the country and the crisis did not receive enough attention. The external aid agencies faced new problems that included extreme levels of insecurity, lack of preparedness and information about the disaster and lack of central authorities (Ahmed & Herbold 1999:121; Menkhaus 2010:322).

In 1992 the numbers of humanitarian agencies in Southern Somalia exploded due to huge media coverage. In general, the relief agencies seemed to operate according to the rules set by the militia who controlled the areas of operation as opposed to their mandate and humanitarian obligations. This was not helped by the launch of Operation Restore Hope, under UN resolution 794 (1992) that resulted in a contradictory multi-mandated intervention involving peace-making, peace-keeping and peace-enforcement activities (Ahmed & Herbold 1999:122; Menkhaus 2010:324). While armed conflict is still a factor in much of Somalia, since 1995 the nature, duration, and intensity of warfare have changed significantly. The period post 1995 saw life returning to a 'normal', which was characterized, by a "rough sort of peace disturbed by the occasional short bout of fighting between militias and, more frequently, by bandit attacks" (Prunier 2003:101). Armed conflicts were more local in nature, pitting sub-clans against one another in an increasingly fragmented political environment. There seemed to be "a growing number of Somali entrepreneurs who believed their business

interests were better served by the creation and recognition of some sort of authority" (World Bank 2005:12).

The operations of the humanitarian agencies remained curtailed, as they had to continually negotiate access to villages. There were now fewer humanitarian agencies on the ground with most preferring cross-border operations. According to Menkhaus (2010:330) most aid programming was aligned to humanitarian response and post-conflict rehabilitation work, yet on the other hand basic human development indicators remained low. Instead of concentrating on long-term development programs, aid organisations were addressing more emergency needs than rehabilitation or development (Menkhaus 2010:330).

In 2015 almost, the total funding for peace building and development activities in Somalia came from foreign aid. In south central Somalia, however aid per capita was a mere US $13.80. There was no focus on development funding creating new risks of vulnerability and instability.

While substantial donor support has been received in Somalia with the Aid Coordination Unit of the Office of the Prime Minister of the Federal Republic of Somalia reporting US$1,3 billion in 2016, and of this, US$328 million dedicated to resilience building, the issue of corruption remains one of the challenges (Federal Republic of Somalia 2017:14). Bertelsmann Stiftung (2016:14) reported that portions of donor and bilateral funds often simply disappeared and there was no accountability on revenues. However, corruption does not seem to have a negative impact on the value of aid that is channelled to country as evidenced by Asongu and Mohamed (2013:2197) and Acht, Mahmoud and Thiele (2015:28) who mention that in "countries with poor levels of governance, donors bypass state institutions and deliver more aid through non-state actors in relative terms and, for the case of corruption and military expenditures, also in absolute terms". This means that fragility and poor governance as experienced in Somalia has no effect on the total value of aid that the country receives as donors will most likely bypass recipient governments and direct aid through non-state actors.

While the need for aid is obvious in Somalia the (OECD 2015:26) was less optimistic of countries in the same bracket as Somalia and argued that the fragile and conflict-affected countries were hard environments in which to spend aid well as they often had weaker institutions and absorptive capacity for aid. According to OECD (2015:26) “although donors placed a heavy emphasis on co-ordination in fragile states, the reality was that in many contexts they still pursued distinct agendas. These challenges were often political, and they reflected divergent interests of national and international actors that were difficult to shift and as a result aid was often less than the sum of its parts. It was thus not always delivered in ways that either aligned with national priorities or built sustainable institutional capacity”.

2.4.1 Donor funding for resilience

The Somali government in its report, Federal Republic of Somalia (2014:74) mention that development partners provided “more than USD 900 million in aid for Somalia in both 2014 and 2015”. The government while acknowledging the funding to be for resilience building activities is however not able to break down how much of that funding goes towards resilience. The report does mention the increase of resilience building activities in recent years. These activities span both the humanitarian and development divide as donors fund them as such. However, the operational coordination of these resilience-building activities is weak and deficient and should be strengthened to ensure that implementation guarantees optimal use of resources and increased impact.

According to the Global Humanitarian Assistance Report, Development Initiatives (2014:86), the two biggest donors in monetary terms in Somalia were the United States government and the European Union institutions, and the following countries were providing multi-year funding:

- United Kingdom (UK): provided US$89 million from 2013- 2017, which included a US$41 million funding to UNICEF, Food and Agriculture Organization (FAO) and the WFP for resilience programmes.
- Sweden: provided US$15 million over from 2013 to 2015 of which US$9

million was directly for the multi-year Somalia Resilience Program (SomReP).

- Denmark: provided in excess of US$11million to Office of the United Nations High Commissioner for Refugees (UNHCR) in 2012 to 2013 and over US$20 million to FAO and SomReP.

The various donors are funding different initiatives depending on their understanding of resilience. The different donors have varying priorities that they believe lead to resilience building as shown on Table 2.1 below.

Table 2-1: Selected aid donors and their resilience priorities

DONOR	PRIORITIES
USAID (USAID 2012:5)	Increased adaptive capacity
	Improved ability to address and reduce risk
	Improved social and economic conditions of vulnerable populations
EC/EU (ECHO 2016:2)	Supporting the development and implementation of national resilience capacities
	Promoting innovation, learning and advocacy
	Improving methodologies and tools
UK - DFID (DFID 2011:10)	Reducing sensitivity and exposure to shocks, hazards and stresses.
	Improving adaptive capacity through asset strengthening and income diversification.
	Strengthening harmonisation of DRR, social protection and climate change adaptation.
SWEDEN (Christoplos, Novaky and Aysan 2012:10)	Make food security a cross-cutting concern that links global policy commitments to the challenges facing vulnerable people.
	Adopt a more explicit risk and resilience emphasis in theories of change and in results frameworks.
	Overcome categorisations disasters and promote policy frameworks, which recognise that vulnerable people search for resilience strategies.
	Use social protection as a cross-cutting concept to put resilience centre stage.
	Link global/regional resilience-related policy and capacity efforts to national programming.
AUSTRALIA	Funding the 2015 Global Assessment Report
	Funding the Women's Resilience Index
	Funding the OECD Resilience Measurement

Table 2.1 above shows some of the major donors that have made commitments to fund resilience building in developing countries. In the table above the definitions of resilience and the activities related to resilience building differ from donor to donor, but there are evidently some similarities in some of the

definitions. There are however some top donors who continue to fund related activities such as climate change or risk reduction such as the Japanese, the Danish, Norwegian and the Dutch governments (The Netherlands Government 2013:28). There is however a convergence of thought among these as well on the effects of climate change and the need to limit the extent of the impact on poor resource people and the environment. Some major donors such as Saudi Arabia and United Arab Emirates are mainly focused on disaster relief and more-so in the Arabic world and are yet to develop strong positions on resilience building. The resilience concept has continued to gain impetus within the donor funding mechanisms. Some of the funding is centred on food assistance, cash for work, disaster risk reduction, early warning/early action systems and innovations to tackle the root causes of poverty. Below is a list of some of the resent projects that were being funded by various donors across Africa to assist in building resilience.

- European Commission (EC): Supporting Horn of Africa's Resilience (SHARE).
- United States Agency for International Development (USAID): Resilience in the Sahel-Enhanced (RISE) initiative.
- DFID: Multi-year approach in Yemen.
- Sweden: (SIDA) Inclusion in humanitarian and development assistance (Development Initiatives 2014:87).

2.5 RESILIENCE AND CLIMATE INDUCED CONFLICT IN SOMALIA

While the background of the conflict in Somalia can easily be attributed to colonialist legacies, repressive regimes and vested interests of clan warlords, there is a rising phenomenon that seems to link the upsurge of the conflict to other phenomenon such as climatic factors. “The interaction between climatic shocks and conflict has long been thought to have negative effects on vulnerable communities” (Calderone, Headey & Maystadt 2014:65). In resource-constrained settings such as Somalia coupled with weak governance and increased population growth, there are signs of more frequent catastrophic events

(Calderone, Headey, & Maystadt 2014:65). In another research on extreme weather and civil war, Maystadt and Ecker (2014:7) found that in East Africa in general and Somalia in particular, drought intensity and drought length were correlated with the incidence of violent conflict events. The hypothesis was that the high livestock prices led to less inclination to participate in conflicts. The correlation was strong leading to suggestions that climate change might exacerbate the risk of conflict (Calderone, Headey & Maystadt 2014:65). In another research, Maystadt, Calderone, and You (2015:658) found a strong relationship between temperature anomalies and conflict with temperature anomalies accounting for about a quarter of the conflicts in Sudan between 1997 and 2009. The authors pointed to the importance of enhancing resilience to weather shocks in particular in arid and semi-arid lowland areas. These points were further supported by Justino (2012:17) who argued that in general, there was very limited knowledge on the options pursued by people in areas of violent conflict, and how their choices and behaviours affected their wellbeing and livelihoods. On the other hand, it is quite evident that each conflict has its causes and cannot solely be blamed just on extreme weather events there is a trend that seems to suggest the connectivity. According to Schleussner et al (2016:9218) the connection is heavily disputed in literature although a sequence of studies has suggested otherwise. There is evidence that people caught up in conflict do show some remarkable levels of resilience. This is evidenced by how they are able to survive despite some of the conflicts that may last for a long time. It is also not in dispute that prolonged conflict and violence leads to negative long-term welfare consequences and as such the people caught up in this do need some support even when they do show some resemblance of resilience. This assertion is particularly true in the case of Luuq in Somalia.

2.6 SOMALIA AS A FRAGILE STATE

Somalia is often referred to as a fragile state. The word ‘fragile states’ has been described by Mcloughlin and Idris (2016:5) as referring to those countries where governments are typically incapable of assuring basic security to their citizens, cannot maintain the rule of law and justice, and are unable to provide basic

services and economic opportunities for their population. The measurement of resilience in these states is challenged by several factors that include; the dearth of reliable information, records and documentation upon which to base policies, difficulties to establish baselines and indicators in order to measure the impact and progress of programming. It can also be difficult to connect early warning systems to appropriate response mechanisms and the fragile countries themselves often have minimal capacities to absorb development assistance. These challenges will only amplify the impacts of climate change on state, community and individual vulnerability, and complicate the design and delivery of response strategies (Crawford et al 2015:2).

2.7 WHY SOMALIA PRESENTS A COMPELLING CASE

According to UNICEF “since the beginning of Somalia’s civil war in 1991, the country has suffered from drought, conflict, instability and the absence of a functioning government. One of the most food insecure countries in the world, Somalia experienced a series of famines and food security crises in 1991-92, 2006, 2008 and 2011. This situation of complex and prolonged crisis has affected the lives and livelihoods of millions of people” (UNICEF 2014:1). Due to the continued instability the country presents a mix of refugees and the host population in most locations. The host-refugee relationship is complex in most instances and very little is known on the exact nature of the relationship especially with relation to food security and resilience building in hosting communities (Mabiso et al 2014:46).

The aid agencies have focused their attention on state building and humanitarian assistance with little gains, which are often reversed when renewed fighting, begins especially in the South. There is however a growing consensus that seeks to assist the populations with abilities to withstand the period shocks which are both natural and human induced. Most aid organisations are now putting this assistance under the umbrella of building the resilience of affected populations.

Somalia presents a compelling case as a study area due to its extended period without a national government and provides a unique opportunity to study

resilience building in an economy of a stateless order or 'development without a state' (LeSage 2005:11). According to Powel, Ford and Nowrasteh (2008:655) Somalia is unique in that it fails to perfectly conform to the agreed theories of war or anarcho-capitalist society as it has been relatively peaceful for most of the period since becoming stateless and living standards have not collapsed. Leeson (2007:690) and the AfDB (2013:3) point out that although a properly constrained government may be superior to statelessness, it may not be true that any government is superior to no government at all. Menkhaus (2006/2007:77) calls this a poorly understood trend "the rise of informal systems of adaptation, security and governance in response to the prolonged absence of a central government".

Some scholars have criticised the resilience approach as being neo-liberal and absolving the state or government from its responsibilities and suggest that the most resilient communities may be those that do not rely on government subsidies for survival but that are relatively autonomous and self-sufficient with regard to economic decision making (Wilson 2014:309). The Hyogo Framework for Action 2005-2015, United Nations International Strategy for Disaster Reduction UNISDR (2005:14) identified the state as having a critical role of conducting baseline assessments, national coordination, ratification of relevant international conventions, and promoting the integration of strategies. The absence of a functional state system in Somalia presents a challenging case and questions the foundation of the UNISDR. Bahadur, Ibrahim and Tanner (2010:14) describe ten resilient systems characteristics; four of these are debatable in the context of Somalia. The first is high economic diversity; the Somalia economy is mainly dependant on livestock, which account for 40 per cent of Gross Domestic product (GDP) and more than 50 per cent of exports. This is a sign of an economy that is not diversified (AfDB 2017:6). The second characteristic is effective governance mechanisms, of which in the case of Somalia the mechanisms collapsed in the year 1991, and currently there is an informal system of governance. Though it can be argued that it is effective it however remains informal in its construct. Thirdly, there should be community

involvement, but in most of the resilience building activities it can be argued that they are driven from the outside and are usually top down. Somalia is fraught with insecurity and most development and aid organisations are not able to get the required expertise on the ground to interact with communities and rely on third parties to collect data. As such the level of community consultation remains questionable. Lastly there should be a high degree of equity, however the Somali economy is also greatly supported by remittances (AfDB 2013:3), which are known to create further inequalities within communities as not everyone has access to remittances and not everyone sends money home and in the same frequency and amounts and yet remittances contribute significantly to the accumulation of assets (Adams 1998:170).

2.8 CONCLUSION

While there has been a combination of humanitarian and political efforts in the last years to bring stability and peace to Somalia, these have nonetheless been unsuccessful. The multifaceted conflict has continued to be out of control in the Southern section of Somalia where this study is located. It is important that understanding the connection between development and conflict in some parts of Somalia is not straightforward, given that there are complex interactions and dynamics that are causes of conflict. In the same setting the humanitarian efforts have attempted to make the people more resilient to the shocks that they experience every day. In this complex environment of an absent government, the measuring of these efforts remains elusive, especially when the current discourse among scholars' points to sustained long-term panel measurements as more accurate pointers to building resilience. The next chapter goes deep into literature to dig out the origins of resilience and places this definition in the context of Somalia as an effort to understand how resilience can both be built and more importantly measured.

CHAPTER 3 : LITERATURE REVIEW

3.1 INTRODUCTION

The purpose of this study was to gain more knowledge on measuring resilience, and it must be admitted from the onset that the concept of resilience is misunderstood and misconstrued. This chapter focuses on shedding more light and drawing a clear path on resilience as it relates to fragile contexts. The chapter is dedicated to those areas of resilience that are relevant to meeting the research objectives and answering the research questions.

Resilience is a complex and multidisciplinary term that spans a variety of fields that include “disciplines such as ecology, development, economics, hazards, global climate change, and food security” (Carpenter, Walker & Anderies 2001:765; Alinovi et al 2010:8). This chapter explores the concept of resilience through thirteen sections. Firstly, the researcher provides a historical narrative and theoretical perspective of resilience so as to provide a solid grounding of the concept. In the second part a background of resilience is given exposing a perspective of the evolving nature of the term from the origins in ecology down to the current usage in socio-ecological systems. In the third section in order to provide contextualization of resilience, the researcher explores the different definitions that are available in literature and how these have evolved with the evolving use of the term. The section concludes with coming up with a working definition for this research, which not only explains the concept in scientific terms but also puts it into the context of this study. In the fourth section the chapter debates the foundation of the theory of resilience explaining its strong linkages with the systems approach, the sociological perspective and its strong grounding socio-ecological systems. The section concludes with a mathematical representation of the resilience theory. The fifth section deals with the contribution that resilience debate has brought into the mainstream aid discourse and explores the various contributions that the concept has given to the sector that have made it a rallying point for a lot of humanitarian aid. The section explains that even though the concept is lauded with lack of clarity it still remains

an important factor in the allocation of aid for most donor organisations or rather as a rallying point for most development organisations. The sixth section focuses on the relationship between resilience and vulnerability and elucidates how the two terms are related and also different; the section explains that the two are neither acronyms nor antonyms. Section seven is on resilience as it relates to food security exploring how it has recently been brought into the discourse of this particular aid sector. The section positions food security and resilience as a centre of this study as most of resilience interventions seem to be inclined towards the attainment of food security and increased incomes. Section eight deals with resilience and gender, arguing that there is a correlation between the two. Section nine pursues the popular terrain of participation in relation to resilience building. Section ten deals with the criticism of the concept of resilience, it draws from the various scholars on why resilience is not necessarily a good thing. The eleventh section is on resilience framework showing how various scholars have explained different frameworks including the different building blocks that constitute each of the frameworks of resilience. The section discusses the dimension and properties of resilience and explores the different methods proposed by different scholars to measure resilience including their strengths and shortcomings. It then advocates for a subjective measure of resilience as one of the simplest methods to measure resilience in remote and difficult environments such as the horn of Africa. The section however argues on the importance of not only relying on one method of measure and proposes that objective measures also need to be included to make the results more reliable. Section twelve explores the challenges of measuring resilience and then leads to section thirteen, which discusses the conceptual framework to measure resilience which this study follows.

3.2 HISTORICAL AND THEORETICAL PERSPECTIVES OF RESILIENCE

There has undoubtedly been an increase in interest in resilience in the last years and donor funding has increased and “so too has the need for clear technical guidance on how to measure resilience” (Constas et al 2014:4). A myriad of attempts have been made to comprehend, conceptualise, operationalise and

measure resilience as a means of intervention for humanitarian and development organisations. This has primarily been driven by wide recognition “that climate change, agro-ecological fragility, economic volatility, and related socio-political instability have produced a more varied, less predictable configuration of risks for the world’s poor. As such the concept of resilience has captured the interest of varied groups of stakeholders concerned with how to ensure the welfare of vulnerable populations living in high poverty” (Constas et al 2014:4). Resilience has been labelled by Welsh (2014:16) as a theory that has come to prominence, “deployed within a variety of epistemic communities as a means of understanding and managing ‘complex systems’ and processes and effects of change upon them”. Mayunga (2007:1) argues that despite the “frequent use of the concept in the academic, research, and policy programs, there is a limited theoretical understanding of resilience”, however “resilience is viewed as valuable because it is seen as providing a unified response to shocks” (d’Errico, Grazioli & Pietrelli 2018:1340) and stressors. Despite a lot of donor funding that has been poured into resilience building it is still difficult to reach a point where there is satisfaction on its attainment and more so when “the resilience agenda is also being strongly driven by funding programmes” (Welsh 2014:16). The use of buzzwords is popular in aid discourse and these words are often used as rallying words for donor funding.

Bahadur, Ibrahim and Tanner (2010:45) argue that in conceptualizing resilience there remains a lack of clarity on the relationship between adaptation, adaptive capacity and resilience, resulting in a lack of understanding of the additional benefits that a resilience approach brings to adaptation. According to Gallopin (2006:302) “the views expressed in the literature range from considering vulnerability as the flip side of resilience to having resilience as one of the components of vulnerability. However, vulnerability does not appear to be the opposite of resilience, because the latter is defined in terms of state shifts between domains of attraction, while vulnerability refers to structural changes in the system, implying changes in its stability landscape. Moreover, resilience is an internal property of the system, not including exposure to perturbations”.

While resilience is framing “discussions around climate change, social protection, sustainable development, macro-economic development and humanitarian response to emergencies” (Pain & Levine 2012:3) there is paucity of robust, documented case studies on the operationalisation of the resilience concept (Mayunga 2007:1; Winderl 2014:5). Secondly, most theorists refer to resilience in the context of a ‘system’ but no “insufficient thought has been given to understanding the limits and contents of a system in the context of interpretations outside ecology” (Wilson 2014:1220). In a world facing economic volatility, more frequent and severe weather and climate related events, it is evident that resilience at both household and community level has become an important factor, however with little ability to measure, it becomes difficult to ascertain where and when there has been achievement and let alone replicate the same in other areas of intervention (Venton et al 2012:2). According to Weichselgartner and Kelman (2015:249) “resilience has been replacing vulnerability and sustainability in academic and policy discourses and as a guiding principle in development planning”. There are mixed views on the relationship between resilience and vulnerability with some authors (Adger et al 2005:1037; Folke et al 2002:457; Pratt, Kaly & Mitchell 2004:1) referring to the two as opposites, but some (Gallopin 2006: 301) asset “that the relationship between the two is not linear, the characteristics are not entirely independent, and that vulnerability does not appear to be the opposite of resilience”. According to Klein and Nicholls (1999:40) “resilience is one factor comprising vulnerability”. Oliver-Smith (2009:15) argues that “lowering vulnerability may or may not increase resilience or may even create other forms of vulnerability”. Weichselgartner and Kelman (2015:253) view the relationship between vulnerability and resilience as contextual and their interaction and interrelationship are a matter of perception.

A variety of actors “are now proposing resilience as a framework for fostering deeper integration between humanitarian and longer-term development interventions” (Osbahr 2007:25; USAID 2012:10; Levine et al 2012:2). On the other hand, CARE (2012:14) argues that while integration makes intuitive sense because a sectoral approach creates inefficiencies and conflicts, differences in

time frames and scales hamper integration. There is also a risk of losing focus, thus creating indistinctiveness, blurriness, and a mash and also that integrating domains may risk overlooking the distinctive nature of each domain.

3.3 BACKGROUND OF RESILIENCE

The concept of resilience has early beginnings dating as far back as the 1970s when Holling described it as “a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables” (Holling 1973:14; Weichselgartner & Kelman 2015:251). He contrasted *resilience* with *stability*, explaining that the stability view emphasizes the equilibrium, the maintenance of a predictable world, while the resilience view emphasizes domains of attraction and the need for persistence (Holling 1973:22). Folke (2006:254) describes Holling’s understanding of resilience as having emerged from a series of experimental studies and papers that he was working on in analysing the process of predation to come up with a population model. From these models he noticed that there was an inevitable appearance of multi-stable states that he then used the term resilience to describe. From then, preliminary applications emerged from a scientific group studying human and wildlife interfaces at the University of British Columbia formed in 1975 and from the Great Lakes groups, followed by examples from the dynamics and management of rangelands, freshwater systems and fisheries.

From 1975 to early 2000 the resilience perspective began to influence fields outside ecology like anthropology, non-linear dynamics and the modelling and simulation of complex systems of both humans and nature, in environmental psychology, cultural theory, human geography, the management literature, property rights and common property research and other social sciences. Work on resilience slowly became the theoretical foundation for active adaptive ecosystem management. This work was expanded into a series of workshops and collaborations among scientists trying to develop models on ecological issues. Most of these efforts were however “largely ignored or opposed by the

mainstream body of ecology in the early days" (Folke 2006:260). Instead, the belief in ecology remained rooted on the absolute single steady state as opposed to the new thinking and with a focus on addressing issues close to a single-equilibrium on small scales with short-term experimentation. In the later years (the 2000s), the window opened for a deeper understanding of the broader context and behaviour of multiple basins of attraction in ecosystems and its relation to social drivers and dynamics, a major point emphasised in the year 2000 in the Millennium Ecosystem Assessment. (The Millennium Ecosystem Assessment (MA) was a UN initiative to give a scientific opinion on the impact of ecosystem change on humanity). This has led to parallel development of resilience concepts that are engineering resilience and ecological resilience. These paradigms of resilience are now seen primarily as analogies, at least partially because of the difficulties in interpreting the mathematical models clearly in an empirical, ecological context (Webb 2007:470).

The resilience perspective was revived in the early 1990s through the research programs of the Beijer Institute of Ecological Economics (an international research institute under the auspices of the Royal Swedish Academy of Sciences), where it was recognised as an essential component in interdisciplinary studies focused on property rights systems, biodiversity, cross-level interactions, complex systems and the problems of fit between institutions and ecosystems and the relations with economic growth. According to Redman, Grove and Kuby (2004:163) a socio-ecological system is defined as a coherent system of biophysical and social factors that regularly interact in a resilient, sustained manner; a system that is defined at several spatial, temporal, and organisational scales, which may be hierarchically linked; a set of critical resources whose flow and use is regulated by a combination of ecological and social systems; and a perpetually dynamic, complex system with continuous adaptation.

Holling and his colleagues continued working on the resilience concept and at the Beijer Institute and the University of Florida. In the year 1999 they formed a consortium of research groups and research institutes from many disciplines

known as the Resilience Alliance (www.resalliance.org). This alliance continues to this day with a mandate to research the kinetics of social ecological-systems. The consortium publishes the quarterly journal *Ecology and Society* (www.ecologyandsociety.org) of which Holling was the founding editor.

Mayunga (2007:1) asserts that the concept of resilience became more popular after the adoption of the Hyogo Framework for Action 2005-2015. He goes further to affirm that the main goal of hazard planning and disaster risk reduction has slightly shifted to focusing more on building community resilience rather than only reducing vulnerability. The concept has gained traction in the recent years through realisation that not all threats or disasters can be averted, and societies are turning their attention to efforts that can enhance resilience. It has thus become increasingly important to accept that every risk cannot be prevented but rather it is more important to adapt and manage risks in a way that minimises impact on human and other systems (Renschler et al 2010:1).

Although resilience originated in the science of ecology, it now reaches beyond specific local biophysical systems, and is used to describe global change in socio-ecological systems (Robin 2014:51). Moreover the high positive moral value of resilience has made it attractive to a range of scientists beyond ecology, particularly those seeking to work closely with policy makers. The next section discusses how resilience has been defined and concludes by offering a definition that was adopted for this research.

3.4 DEFINITION OF RESILIENCE

The genesis of resilience in ecology and its transition to socio-ecological systems make it difficult to reconcile knowledge and approaches with current progress in understanding resilience (Webb 2007:470). While the attributes that resilience thinking represents are undisputed, care must be taken that with popularity of resilience materialises the risk of diluting and blurring the meaning (Olsson et al 2015:2). While in its broadest sense, resilience is a measure of the ability of a system to withstand stresses and shocks, Mayunga (2007:12) argues for the need for a general way of defining resilience that maps across various systems

because without a consensus about a common ground it is very challenging to systematically operationalise resilience. On the other hand, a general meaning can stretch resilience too far, rendering it a panchreston, a notion that is good for everything because it merely means whatever people want it to mean. The scientific resilience community has consistently tried to define it precisely, and to resist the 'anything goes' definition, adopting a range of strategies, including intense internal debates, which continue to the present (Robin 2014:51). On the other hand, while it is important to define terms and issues precisely it also limits the amount of creativity that can be put on terms especially when they are inter or transdisciplinary while again this could be a sign of immaturity on the term or the concept. It is however evident that some maturation and convergence on resilience is occurring as will be shown by the next section.

Resilience is an instinctive, malleable, adaptable and system-level attribute that in stressful episodes facilitates the most appropriate reaction of complex adaptive systems in response to stimuli. The trajectory of the development of the concept reflects an integral convergence of the resilience concept towards becoming more and more associated with human agency and the capacity to regulate the fight-flight response. In this world where stressful conditions are the norm, the aim of future-proofing systems cannot be sustained. On the contrary, a comprehensive cognitive shift should be adopted. This can be made possible if there is a link between the research on resilience to that of cognitive capacities of social systems in response to life and global challenges.

When measuring resilience, the definition of resilience becomes important as it determines the basis of how to measure and without which resilience becomes "what each person chooses to measure or what is easily measurable" (Pain & Levine 2012:5; Fitzgibbon 2014:1). Mayunga (2007:1) admits that despite its popularity and frequent use, there is a limited theoretical understanding of the concept of disaster resilience. It is not clear how this concept should be assessed, measured or mapped. Again "resilience is not a universally accepted term, nor does it have a universally accepted definition likewise. The view of governments and organisations on resilience is diverse, thus arises the summary

question: resilience of what to what and at what scales?" (Weichselgartner & Kelman 2015:251). "The confusion has led some researchers and practitioners in the field to wonder if resilience is just a fashionable new term with no new content" (Edwards 2015:828). These experiences are not new in the humanitarian world where there is an abuse of terms and channelling of funding as was seen in recent years with terms such as sustainability, climate change, participation and disaster risk reduction.

It is fair to conclude that "although a conclusive definition of resilience may provide a more 'operationalisable' and measurable version of resilience, such an abstraction will be insufficient to capture the concrete experiences of people who confront shocks and variability in their everyday lives" (Walsh-Dilley & Wolford 2015:176). As such the search for a comprehensive definition of resilience might not be feasible or more accurately might not cover all the aspects that the current world seeks to explain. It is important that researchers unlike development practitioners are not clouded in their construction and perception of resilience to the point of transforming resilience to a meaningless term. In the process it is also vital to separate the negative connotations that are associated with the term that seek to portray as normal, oppressions and denials of power (Walsh-Dilley & Wolford 2015:176).

A number of definitions of resilience are prominent in literature and are diverse reflecting the complexity and multidisciplinary nature of the subject. It reinforces the notion of a non-universal definition and getting a mutual understanding is difficult, yet commonalities within the literature exist. There are various definitions available in literature as shown below, The Humanitarian Policy Group define resilience as *"the capacity of people or systems to cope with stresses and shocks by anticipating them, preparing for them, responding to them and recovering from them" (*HPG 2011:5). The United Nations Office for Disaster Risk Reduction define resilience as "*the capacity of a system, community or society potentially exposed to hazards to adapt by resisting or changing in order to reach and maintain an acceptable level of functioning and structure"* (UNISDR 2005:4). The Intergovernmental Panel on Climate Change define it as *"the ability of a social or*

ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change" (IPCC) 2007:37). In understanding and defining resilience, Leach (2008:3) "suggests that four different terms (resilience, durability, stability and robustness) should be used to distinguish between situations, covering what people are responding to and how, to avoid conflating different kind of dynamics and resilience should specifically be reserved for an adaptive response to shocks". Béné et al (2012:11) explain that there are too many definitions put forward in literature, reflecting the "broad range of disciplines that have embraced the concept of resilience".

A closer look at the definitions over the years reveals a progressive clarification in the way resilience is conceptualised. There is a shift in the definition from more outcome-oriented to more process-oriented. Undoubtedly, earlier authors were thinking of resilience as a process to reach an outcome. However, use of the terms 'cope', 'bounce back', 'withstand' or 'absorb negative impacts' to return to 'normal' within the shortest possible time, tend to emphasise a reactive stance (Manyena 2006:4380). "Although all of these recent definitions differ slightly in their wording, most of them highlight similar elements" (Béné et al 2014:600). The similarities among the scholars range from descriptions of resilience as an ability, resistance, recovery from, or adaption to shocks. This is recognised as a major shift from the previous assumptions of resilience as representing equilibrium and immobility (Béné et al 2012:11).

McEntire et al (2002:269) argue that one of the major challenges inhibiting agreement upon any definition is due to the fact that individuals, groups, and communities may each possess differing degrees of resilience, which vary over time. It may be that resilience may mean that people can continue the "way they live and work without having to adapt, or it may mean that people are capable of adapting" (Pain & Levine 2012:9). Carpenter, Walker and Andries (2001:766) elaborate by looking at resilience as having multiple levels of meaning, first as a metaphor related to sustainability, and secondly as a measurable quantity that can be assessed in field studies of socio-ecological systems. Despite the

"increasing attention paid to system resilience, the concept is rather poorly understood, in particular when it comes to its practical application" (Luedeling et al 2014:6). It is necessary to define resilience as an end impact or outcome so that practical measurement frameworks can emerge (Fitzgibbon 2014:2).

This study will adopt the definition of resilience "**as the capacity over time of a person, household or aggregate unit to avoid poverty in the face of various stressors and in the wake of myriad shocks"** (Barrett & Constas 2014:3; Constas, Frankenberger & Hoddinott 2014:6).

The choice of this definition is based on the following four reasons: (a) it implicitly emphasises that resilience is a dynamic and stochastic concept, (b) the definition explicitly recognises the impact of background risk and that sometimes this risk can turn into adverse events, (c) "the definition distinguishes between different levels of aggregation: individuals, households, and communities and (d) it focuses squarely on human well-being outcomes measured against some normative standard such as poverty or food insecurity" (Barrett and Headey 2014:5). More importantly this definition removes the element of bouncing back and focuses more on transformation as disasters are more often accompanied by change. In this sense, Folke (2006:260) argues for resilience as an approach that provides a valuable context for the analysis of social–ecological systems. He looks at it as a research area undergoing rapid development with impacts that may extend sustainable development. The theory of resilience is covered in the next section.

3.5 THE THEORY OF RESILIENCE

According to Klein and Zedeck (2004:931) theories provide meaning, as they allow for understanding and interpretation of data. They also help in identifying and defining problems, prescribing mechanisms for problem evaluation and determination, and simplify answers to new challenges. Various theories of resilience have been proposed over the decades. Most of these theories incorporate the notion that resilience is a dynamic process that changes over time. The resilience theory has strong foundations in systems theory, whose

understanding is that a system is an interconnected set of elements that is coherently organised in a way that achieves something (Meadows 2008:11). Resilience thinking uses systems concepts to understand such abrupt changes. Thinking in systems is based on the understanding that the human domain and the biophysical domain are interdependent. The process of aligning resilience thinking with the systems framework hinges on three concepts, that are (1) human and ecological systems are embedded; (2) socio-ecological systems are unpredictable and complex; and (3) that resilience thinking views the social-ecological system as one unit with linked scales of time and space (Pisano 2012:6).

3.5.1 Systems theory and the foundation of resilience theory

Resilience is a system that contains many feedback loops that can work in different ways to restore a system even after a large perturbation leading to self-organising. Human populations can "learn" and evolve and if given enough time are able to come up with whole new systems to take advantage of changing opportunities for life support. But "resilience is not only about being persistent or robust to disturbance. It is also about the opportunities that disturbance opens in terms of recombination of evolved structures and processes, renewal of the system and emergence of new trajectories" (Folke 2006:206). Resilience may be very hard to see, unless its limits are exceeded leading to damage of the balancing loops, and the system structure breaks down. Because resilience needs an entire system view, resilience is often sacrificed for stability, productivity, or some other easily and immediately recognisable system property. A resilient system has enough room to stretch and bounce back if it comes near a dangerous edge. The awareness of resilience and its limits enables visualisation of alternatives to both preserve and enhance a system's restorative powers. It is the basis and the evidence behind aid programs that are trying to change the circumstances that obstruct peoples' ability to be self-sustaining.

3.5.2 The sociological perspective of resilience

According to Stone-Jovicich (2015:3) "social science perspectives on the

relationships and dynamics between people and the biophysical world" emerge primarily from divergent philosophical assumptions about ontology and epistemology. From the perspective of social actors, resilience is problematic according to Olsson et al (2015:9) because the definitions of resilience are inconsistent, the language of resilience has a poor fit in social sciences as pertinent social science theories and concepts such as knowledge, agency, power, and conflict do not feature in resilience theory. However social actors contend that resilience can develop into a powerful depoliticising or naturalising "scientific concept and metaphor when used by political actors". The other contention is that while the concept of resilience is viewed as unifying in scientific disciplines the same cannot be extended to social sciences as the view is that it can easily lead to scientific imperialism. Olsson et al (2015:9) argue that to make the term resilience useful for social-science there is need to use a theoretical approach that takes into consideration the interactions of immaterial and material factors, considers socio-spatial as well as temporal dimensions of relational actor-networks. In this way the theoretical concept can be made fruitful as a heuristic model for empirical analysis (Christmann, Balgar & Mahlkow 2014:155). Some authors such as Obrist, Pfeiffer and Henley (2010:291), argue for the importance of self-organisation as a prerequisite of developing resilience and assert that an understanding of the process of social structuration is important in understanding self-organisation. These scholars also emphasise that it is prudent to develop a framework that emphasises the interactions between enabling factors and capacities operating at different levels of the environment and society. The enabling factors protect against and help to master the threats of adversity while capacities enable social actors not only to cope with and adjust to adverse conditions, but also to create options and responses that increase competence, and thus create pathways for mitigating or even overcoming adversity. Such an approach redirects focus from managing risk to building resilience. Again sociologist dismiss the notion of a 'heroic' resilience one which is a celebrated positive attribute to overcome or respond to traumatic events in a creative fashion and often turning such events into opportunities (Estêvão,

Calado & Capucha 2017:13). They argue that resilience should instead be looked at as a multi-tiered complex process by which entities react to spontaneous perturbations. What is key in this sociological insight and perspective in the resilience debate is the debasing of focus from the individual to the social realm and from individual actions to the formulation of conducive conditions for them to take place (Estêvão, Calado & Capucha 2017:21). The standpoint of social actors on resilience is further affirmed by Olsson, Galaz and Boonstra (2014:6) who argue that "the problem is not a lack of individual and societal innovative and transformative capacity, but rather how this capacity can be used to solve social and environmental problems and create the conditions for human welfare both today and in the future". Estêvão, Calado and Capucha (2017:21) conclude that "resilience is neither a good nor a bad process and that what matters from a sociological standpoint, is that resilience is only worth promoting in as much as it actually transforms a way of life to the point that poverty factors and their interplay are lessened or no longer work".

3.5.3 Socio-ecological systems, adaptive cycles and panarchies

The theory of resilience also has underpinnings on the concept of panarchy, which moves away from stability and return to the status quo, to persistence and innovation. Panarchy argues for benefiting from local inventions that create larger opportunity while being kept safe from those that destabilise the status quo. The timing and kind of responses to these swings and turbulent processes can thus be appropriately designed as part of a strategic decision process. For institutions, Ostrom (2009:421) calls them operational rules, collective choice rules, and constitutional rules, each having different speeds of function and scale and generality of relevance. Another concept that is important to the theory of resilience is adaptive capacity. It is described as system robustness to changes in resilience. This robustness is dependent on the accumulated capital that provides sources for recovery. Thus, resilience is re-established by the processes that contribute to system 'memory' of those involved in regeneration and renewal that connect that system's present to its past and how it relates to the next system. Resilience is maintained by focusing on keystone structuring

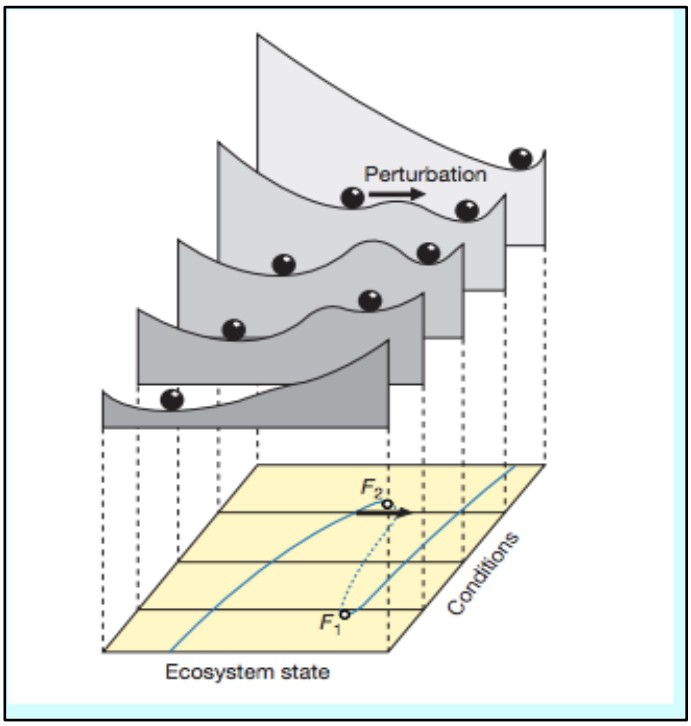
processes that cross scales, on sources of renewal and reformation, and on multiple sources of capital and skills (Gunderson 2000:436). External conditions to ecosystems are often slow to change with marginal movements relative to time. The response to change in some ecosystems might be smooth and continuous without disruptions. In some however, the change might be inert initially in some conditions and then react more harshly when the status approach some critical level. The implication of this phenomenon is the existence of several stable states within an ecosystem, which are interspaced with unstable equilibrium that indicate a border between the 'basins of attraction' of the alternative states. This presence of alternative stable states has significant ramifications for an ecosystems response to environmental change. The occurrence of these catastrophic shifts is random and difficult to predict even with early warning systems or some mathematical models. In the presence of a single basin of attraction, the system will revert to the previous state after the disturbance, however, in the presence of several stable states, and an equally sufficiently relentless disruption, the state of the ecosystem may be brought to the state of another basin of attraction. The probability of this occurrence not only lies with the perturbation, but also depends on the size of the attracting basin. The size of basin of attraction is the 'resilience' and is equivalent to the largest perturbation that can be tolerated by a system without triggering a shift to a different stable state. Some systems may contain numerous stable states, and slowly and gradually changing environmental conditions may not have a profound impact on the ecosystem condition, but these regardless of size may erode the magnitude of the attraction basin. These losses in resilience render the system more fragile and thus more susceptible to be tipped into alternative states by stochastic events.

"In practice, it will often be a blend of internal processes and external forces that generate fluctuations that can induce a state shift by bringing systems with reduced resilience over the boundary of an attraction basin. In view of these permanent fluctuations, the term `stable state' is hardly appropriate for any ecosystem" (Scheffer et al 2001:591).

3.5.4 The mathematical model of the resilience theory

The mathematical model below illustrates the different stable states and the basins of attractions including what happens when resilience is low which leads to a totally different state of stability. Figure 3.1 is an illustration of how external conditions affect the resilience of multi-stable ecosystems to perturbations and the resultant effect of such perturbation depending on the previous conditions of the system.

Figure 3-1: The stability basins illustrating how perturbations affect resilience equilibria



Scheffer et al (2001:593)

Figure 3.1 above depicts five different results depending on the level of instability as depicted by the middle section. The high middle section, ('the hill') denotes the resilience of the system. If the size of the attraction basin is small, resilience is small and even a moderate perturbation may bring the system into the alternative basin of attraction. The ball gravitates to the troughs, which represent the stable equilibria. An alteration in the environment will affect the landscape stability of the

above diagram. This change, under usual circumstances leads to minor changes in the curvature of the depression of the trough. However, with bigger shifts that may happen from time to time, the size of the valley can shrink. When this happens, a 'catastrophic transition' to another trough occurs. Restorations of the previous environmental conditions are not sufficient to return the previous status quo. Instead, there is need to shift further back to a different bifurcation point (represented by F1). In the current condition, the initial state influences the equilibrium that the system will settle to. However, a sufficiently severe perturbation can alter stability and activate a shift to a different stable state. This happens when the basin of attraction surrounding the present state is minute. The magnitude of the basin of attraction is known as resilience. A shift in environment can influence the size of resilience without much altering the equilibrium condition. While in some instances the system may appear unchanged it has however become brittle due to persistent battering in such a way that progressively small perturbations have the potential to induce an alteration to another state (Scheffer & Carpenter 2003:650).

3.6 THE IMPORTANCE OF RESILIENCE

The central reason why the concept of resilience is useful is because people live in complex and interconnected systems and experience different crises, shocks, stresses, hazards and risks in overlapping or simultaneous ways (Harris 2011:4). The concept of resilience is therefore potentially useful for developing a more holistic understanding of the complexities of the challenges that individuals face daily. Harris (2011:4) further explains that the term is seen as a unifying concept under which many communities of practice, disciplines and policy realms can relate to one another and that it has the potential to radically transform the compartmentalised and somewhat fragmented ways the challenges of development are currently framed and addressed.

On the other hand, Olsson et al (2015:9) argue that the unifying ambition in resilience theory is counterproductive to successful interdisciplinary and integrated research. Olsson et al (2015:9) continue and assert that resilience

should be viewed and known as a “middle-range theory” and accept the fact that it may be compatible with some, but not all, ontologies. They raise two points to support their standpoint: firstly, that the desire of a “unifying theory” is debated because in the scientific real unity is controversial. Secondly, that incommensurability of the ontological type bars unification or consolidation is profoundly illustrated by the way resilience thinking regenerates functionalism, which is considered out-dated in present day social sciences. According to Peyroux (2015:562) resilience thinking grants a departure from a “deficit model to an asset-focused model” that accompanies a policy shift allowing a grasp of threats and gives resilience a strong analytical dimension.

Compared to sustainable development, “resilience implies both a preventive and an adaptation approach and is now considered a condition or a critical factor for sustainability” (Peyroux 2015:562). Headey and Barrett (2015:11423) assert that with increasing resources being allocated to humanitarian assistance and development programs with the aim of building resilience, there is need to invest the same effort in data collection to monitor the development of resilience in the world’s most volatile places. With improved data there would also be improved targeting of resources to achieve greatest impact. For academics, such a system would be a platform for result sharing and comparison on a wide range of topics, and more importantly used for designing and evaluating appropriate resilience-building interventions and strategies.

Resilience is holistic, casts a wider net, engages with cross-scalar interactions, and “also has the potential to bridge the humanitarian-development divide, potentially linking relief and development efforts by emphasizing how poverty or lack of resources can exacerbate vulnerabilities to natural and social disasters” (Walsh-Dilley, Wolford & McCarthy 2016:3). While resilience has been on the rise within disaster risk management, vulnerability has also come up as a related and central concept of adaptation and transformation. These two terms might have been differentiated in science by conceptual constructs, traditions, and or lack of interaction between the academic communities involved that are now trying to find linkages and differentiation of the terms. The next section compares the two

terms and offers some explanation on their relation and differences.

3.7 RESILIENCE VERSUS VULNERABILITY

While vulnerability has been the major term of focus for development and aid organisations, there has been more recently a significant shift towards a much greater focus on resilience (Cannon & Muller-Mann 2010:631). The relationship between resilience and vulnerability is however heavily contested that it is sometimes said that vulnerability is the antonym of resilience (Gallopin 2006:298). According to Bergstrand et al (2015:393) “vulnerability and resilience can be viewed as separate but often linked concepts with vulnerability speaking to the inherent qualities of a social system that exist before events like disasters occur that contribute to the amount of risk of exposure as well as the degree of harm, while resilience is the conditions that help social systems to absorb, cope with, and adapt to hazards and disasters”. Vulnerability is thus a “manifestation of the inherent states of the system that can be subjected to a natural hazard or be exploited to adversely affect that system while resilience is the ability of the system to withstand a major disruption within acceptable degradation parameters and to recover within an acceptable time, and composite costs, and risks” (Aven, 2011:518).

Bergstrand et al (2015:393) argue that while multiple scholars note the existence of a conceptual “link between resilience and vulnerability” few have empirically investigated the relationship. There seems to be an assumption that low resilience means high vulnerability, however this premise has not been appraised on a wider scale. The terms resilience and vulnerability are similar and relate to coping with uncertain or changing futures, but resilience has a more positive societal connotation and is therefore arguably more politically tractable (Meerow & Newell 2015:237).

Scott (2013:600) argues for a simpler relationship between the two when he posits that creating resilience is most appropriately thought of as a process of social learning, using human capacities and knowledge to reduce vulnerability and risk in the face of the unknown and unexpected. Again Scott (2013:604)

concludes that vulnerability represents not only the 'flip-side' of resilience, but also a useful device for assessing the exposure to risk of places due to economic and environmental disturbances, but also as a tool for assessing vulnerability trajectories based on public policy interventions or economic scenarios.

Wilson (2014:45) contrast the two terms at the community level as follows: that resilience is about understanding a 'positive' quality of a community under investigation while vulnerability, by contrast, is used to describe exposure and sensitivity of a community not able to cope with disturbances and is associated with a 'negative' quality. He concludes that resilience or vulnerability can be expressed as a simple spectrum, with complete disappearance of a community due to destruction of the livelihood base at one end, and a strongly resilient community at the other.

Gallopin (2006:299) views resilience as less than the flip side of vulnerability as it implies system behaviour preservation, while vulnerability implies transformations that may go beyond a single domain. Reghezza-Zitt et al (2012:10) conclude that the transition from a state of vulnerability to that of resilience cannot be reduced to a simplistic and semantic shift since the two terms are not exactly interchangeable. The continuum question also has to be interrogated to ascertain what it takes to move from one end to the other. In addition, inverting the terms is even less desirable considering a certain tendency to use vulnerability analysis methods on resilience, which basically comes down to shifting those methodological issues without solving them. While from the above argument it is now clear that there is no distinct line between vulnerability and resilience, this research moves away from giving a precise definition or differentiation of the terms but would propose that both need recognition without elevating one over the other. It is important for donors and aid organisation to still focus on reducing vulnerability including its causes and at the same time increase the resilience of households and communities to future disasters.

The next section deals with coordinating and situating resilience on food security as a means of analysis. This is driven by the understanding that the vulnerability

of the poor to hunger, in the "context of droughts, floods, conflicts and other natural and man-made disasters, has long been highlighted and the links between resilience, food security and nutrition seem therefore easy enough to draw" (Béné et al 2014:123). As pointed out in literature there is need to define resilience to a particular phenomenon, the next section centres on resilience and food security. This is an important aspect in relation to the situation in Somalia where climatic and conflict induced droughts are prevalent leading to food insecurity.

3.8 RESILIENCE AND FOOD SECURITY

It has been pointed in the preceding sections that the resilience theory has a lengthy history in other disciplines including ecology, psychology and hazards. The extension of the concept to the field of food security and community development is recent. It however holds a lot of promise as the framework implies building a capacity to cope with future perturbations and stresses that in most instances undermine efforts that lead to sustainable solutions and reduction of chronic poverty.

Constas and Barrett's (2013:3) conception of resilience related food security focuses on human living standards. The normative significance of this conceptualisation is the prioritisation of poverty avoidance and escape, food insecurity and minimisation of low living standards within populations. At a national level in particular, there are huge "challenges to mainstreaming resilience thinking into food and nutrition security policy and programming" (Pelletier et al 2016:470). Constas and Barrett (2013:6) assert that the leading challenge in measuring resilience to food insecurity is that measuring food security itself is still in dispute despite the large number of indicators which have failed to bring the scholars and the agencies together. They argue that in as much as the chasm remains wide within food security then a consensus in the future on measuring resilience to food security is far. While two negatives produce a positive in algebra, it is unlikely that two ambiguities will produce a clarification. In part the difficulty lies in the understanding of resilience, "as being

embedded within dynamic and highly contextual processes. This drives the meaning to different directions for different actors. In each case, resilience is generally not considered as an end in itself, but as a means to achieving other development goals, such as food and nutrition security, poverty reduction, maintenance of ecosystem services, or equity" (Pelletier et al 2016:473). In solving some of the challenges associated with realising resilient food systems there is need to support extensive public and private investment in agricultural research and development.

Applying resilience thinking to agriculture could help reduce food system vulnerabilities as resilient systems incorporate internal feedback mechanisms, maintain redundancy, and promote responsive governance and diversification at almost all levels (Schipanski et al 2016:9). Alinovi et al (2010:33) in studying resilience to food security concluded that it is possible to come up with an estimation of resilience despite the challenges of the absence of a panel data set. They found out that the results were meaningful and different livelihoods groups showed significant differences in their resilience indexes.

While it does appear that the reasons for the popularity of the resilience concept are attractive and intuitive however it is not a panacea, and the concept has its limitations. The multiplication and evolving definitions may lead to over-complication of issues. "There are also concerns with how the theory of resilience is already being applied in certain academic disciplines as a specific concept, with clearly defined meanings and application yet there is very little agreement on the same" (Béné et al 2014:614).

The next section deals with resilience and gender and the problems associated with the resilience concept in detail, setting aside the fears that it is emerging as a 'new tyranny', the same fate that has befallen popular concepts such the participatory approach (Béné et al 2012:47).

3.9 RESILIENCE AND GENDER

The relationship between gender and resilience has not been explored much in literature but it has a profound effect on how a household would choose or gets

enrolled into a socio-ecological system. The understanding of gender "should not be used as a proxy for understanding subjectivity but rather, as a starting point to understand" the enrolment process (Cote & Nightingale 2012:484). As such, it is vital to deploy a gender research explicitly focusing on addressing resilience and purposely positioned to critical social theory. The important import of this research should be generation of profound insights and perceptions on gender and resilience. The preferred outcome of this effort is a strong and critical debate on different socio-ecological change mechanisms and their interface with dynamic gendered power relations. This will create plural spaces for mutually constructive and productive debate (Kawarazuka et al 2017:203). The "spatial variety of nature provides different types of environmental opportunity and hazard" and that "humans are not equally able to access the resources and opportunities, nor are they equally exposed to hazards" (Wisner et al 1994:6) because of class, gender, income, ethnicity, and age. Gender creates a risk that is intrinsically created in a system through inequality in resources distribution. This includes the complexities of addressing the different ways in which diverse groups of people or resource users get affected by perturbations or shocks and recover or adapt to change in different ways, and how distinctive power and agency relations achieve equilibrium or take changes within the systems. Varying exposure, vulnerability, and coping capacity mean that people or communities are differentially able to deal with rapid or slow-onset changes related to disasters depending on their gender (Bollettino et al 2017:21) especially because of "complex, dynamic and sometimes conflictual power relationships that exist in society" (Kawarazuka et al 2017:203). In recognition of this, some scholars have made efforts to expand the potential of "socio–ecological resilience analysis as an adaptable cross-disciplinary approach", to firmly focus its capacity in analysis of social dynamics (Kawarazuka et al 2017:203).

3.10 RESILIENCE AND PARTICIPATION

While participation like resilience can be categorised as a 'buzz word' in international development, a look at the important forms of participation in development point that it must be representative and transformative for it to

achieve positive outcomes for the affected population (Mikkelsen 2005:62). This is driven by the understanding that participation enables people to see more clearly and learn from the complexities that they are living and working amid. Through participation people can identify opportunities and strategies for action and build solidarity to effect change. The role of participation in ecosystem management is well accepted and documented. Participation appears to function mainly as a facilitating mechanism that promotes the capacity for learning and collective action in response to socio-ecological systems change. In promoting participation, it is essential to develop a nuanced understanding of who participates, under what conditions participation is appropriate and how participation takes place. Stakeholder participation is increasingly seen as an important, if not, essential component but not sufficient for resilience of ecosystem services (Biggs, Schlüter & Schoon 2015:218) as such it is critical to include the integration of behavioural economics, psychology, and resilience theory offers potential for more effective policy design. A better understanding of human motivations, preferences, and cultural norms surrounding nature and its benefits is a prerequisite for changes in human–nature interactions (Guerrya et al 2015:7351). Social networks can play a critical role in the adoption of social norms by providing critical conduits for the exchange of information and knowledge and fostering the development of mutual trust (Alexander et al 2018:2). A holistic resilience-building project would therefore consist of community participation, understanding audience's needs and perceptions and integrate a sequence of approaches to cater for different segments of the population. Increased community trust and effective participation and collaboration can be achieved through appropriate community engagement. This enables empowerment, increased capability to live with hazards and improved social interactions among individuals involved. "Participation is also fundamental to initiatives aiming to build socio-ecological resilience, as it can play a significant role in supporting transparency, the legitimacy of decisions, knowledge sharing and learning. Further, participation builds the trust needed to mobilise and self-organise. As an essential feature of social capital, trust lubricates cooperation

and reduces the transaction costs between people, playing a significant role in the activation of collective action" (Galvis 2016:19). Finally, participation fosters social learning and hence the population's adaptive capacity (Callo-Concha & Ewert 2014:9).

3.11 CRITICISM OF THE CONCEPT OF RESILIENCE

The resilience concept has been heavily criticised for its shortfalls in considering issues of power and agency and reflecting social dynamics in general. This is strongly illustrated when "political ecologists raise this issue of politics and relations of power as a central component of their critique of resilience thinking in development and argue that there is no point of intersection between system resilience and virtually any contemporary account of social power or for that matter the contradictory dynamics of capitalist accumulation" (Walsh-Dilley, Wolford & McCarthy 2016:4).

In most instances' literature downplays the negative side of resilience and presents it as a primary objective to aspire to, without recognising that resilience is actually apolitical (Welsh 2014:21). Since resilience "remains relatively complex and particularly difficult to operationalise there is therefore a risk that adopting a resilience approach makes things over-complicated" (Béné et al 2012:46). Weichselgartner and Kelman (2015:251) argue that too many resilience-building activities draw upon unchallenged assumptions about the social world, effectively imposing a technical-reductionist framework upon more complex webs of knowledge, values and meaning and thus action. It fails to recognise that the world is different from the ontological status of ecosystems (Welsh 2014:20; Wilson 2014:216, Robinson & Carson 2016:5). The socio-ecological system resilience assumption that threats and disturbances are unknown and external, is often frustrating to "the possibility that these threats are frequently related to social phenomena that are both easily accounted for or understood" (Walsh-Dilley, Wolford & McCarthy 2016:4).

Walker and Cooper (2011:153) emphasise that the "adoption of resilience combines an almost obsessive focus on the necessity of preparedness with the

disarming recognition that anticipation and prevention of all future contingencies is a logical impossibility. Within this optic, preparedness would seem to demand the generic ability to adapt to unknowable contingencies rather than actual prevention or indeed adaptation to future events of known probability". Disasters are viewed as an opportunity to transform and be governed differently at the same time being responsible for the transformation. "In relation to climate change, resilience and adaptation now sit side by side, potentially displacing the more revolutionary concept of mitigation" (Welsh 2014:20).

Reid (2012:76) argues that the account of the world envisaged and constituted by development agencies concerned with building resilient subjects is one that presupposes the disastrousness of the world, and likewise one, which interpellates a subject that is permanently called upon to bear the disaster. The process of building resilient subjects is one of disempowering them of their political tendencies, habits and capacities and replacing these with adaptive ones. "The resultant subjects would accept their fate and not to resist or secure themselves from the challenges they are faced with but instead adapt to enabling conditions through embracing of neoliberalism" (Mezzadra, Reid & Samaddar: 2013:7). More scholars criticise the resilience approach in that it has supported neoliberal governance and is positivist (Welsh 2014:21; Weichselgartner & Kelman 2015:251; Peyroux 2015:562) being "oblivious not only of power, conflict and contradiction, but also of culture". Consequently, the resilience discourse has reduced the political to the policing of change (Welsh 2014:20), "diverting attention from questions of power, justice or the types of future that can be envisaged. As such, it could be said to produce citizens and institutions whose act is to maintain the status quo rather than conceive of challenging it" (Welsh 2014:16; Peyroux 2015:563).

Weichselgartner and Kelman (2015:251) add that the "ability to be resilient is never distributed homogenously within and through social groups, instead, this ability is largely determined by social, economic and cultural factors, and, because the minority of a society often holds control over the decision making for the majority, these factors may often be beyond society's control" and "social

divisions and inequalities tends to be glossed over when resilience thinking is extended to society" (MacKinnon & Derickson 2013:258). Robinson and Carson (2015:6) and MacKinnon and Derickson (2013:253) "contend that the concern with the resilience of places is misplaced in terms of spatial scale 'since the processes that shape resilience operate primarily at the scale of capitalist social relations' meaning that communities cannot be expected to develop adaptive capacity as self-contained systems that are divorced from national and global flows of capital and power."

Some scholars (Robinson & Carson 2015:6; MacKinnon & Derickson 2013: 266) argue for an alternative to the use of resilience. They introduce the term resourcefulness, which is empowerment to communities and disadvantaged groups to demand more through increased local political expression which holds those in power to account thus realising more recognition, release of resources and better utilisation of skills sets. There is potential of addressing issues that have previously been overlooked through resourcefulness.

Olsson et al (2015:6) posits that while resilience is attractive in terms of "coherence, simplicity, and completeness", however despite these attributes there are challenges in using and applying resilience as a broad and unlimited concept. The challenges include seeing reality as a system; overshadowing of agency, conflict, and power by the principle of self-organisation; and the acceptance of the notion of function as foundational to resilience theory while having lost its centrality in the social sciences.

Due to its "malleability in science combined with its popularity among powerful private or public actors, there is a risk of (un) intentional scientific justification of particular policies, projects, and practices that create a tendency in resilience theory to depoliticise social change. To exemplify this, resilience is increasingly adopted by influential global organisations such as the United Nations Development Program and funding institutions such as the Rockefeller Foundation as a basis for policy-making and deployment of funds" (Olsson et al 2015:6). However, despite this criticism resilience still remains important in aid

discourse and its potential can be greatly realised if resilience takes a more systemic approach by including not only vulnerability in its approach but also the root causes of poverty as its central analytical approach.

In critiquing the resilience framework scholars argue that it still remains short and insufficient to engage with social system complexities, dynamics and remains ineffective at addressing some of the core social science concepts (Bruneau et al 2003:737). According to Ingalls and Stedman (2016:5) critiques "emphasize limitations based on its descriptive, analytic, and normative dimensions". The concept has poor engagement with power roles in shaping socio-ecological outcomes, as argued by Davidson (2013:24) that most understanding of resilience glosses over on important issues such as how power has a bearing on resilience? How do extreme events, including abrupt disruptions in resource flows, affect power relations? Is it realistic to insist that communities themselves are capable of asserting control over their own resilience?

In conclusion, the resilience theory devolves power from a centralised position of a strong nation-state to emphasise the role of civil society and local level actors. It leans towards a relativist view of civil society and local actors allowing different ides to fester in the quest to solve problems. Furthermore, the theory seems to advocate for a weak consultative structure with a wobbly bottom up perspective on political order. Finally, resilience theory views human beings as subservient to nature and their role being of adaption to the dictates of the later (Andersson 2007:37). These criticisms of resilience "have generally focused on ambiguities in definitions; heterogeneity, instability of the phenomenon of resilience; and concerns regarding the usefulness of resilience as a theoretical construct" (Luthar, Cicchetti & Becker 2000:543). There is however realisation of the power embodied by the concept, and that this potential will remain constrained in the absence of sustained scientific attention towards conceptual and methodological drawbacks pointed out by both sceptics and proponents of the theory. The next section focuses on the different frameworks that have been put forward as a means of constructing resilience.

3.12 SCHOOLS OF THOUGHT ON RESILIENCE FRAMEWORKS

In seeking to understand and explain resilience it is important that an integrative appraisal be conducted to examine the definition and conceptulisation of resilience in empirical research. Integrative review is chosen because it is the broadest type of research review (Whittemore & Knafl (2005:547) or a holistic approach methodology (Borja et al 2008:1520) and provides the right framework to exhaustively investigate complex concepts such as resilience. In light of lack of congruence in definition and use diversity of resilience it is paramount that the methodologies selected are diverse and data collection is from a wide range of settings. The literature in focus is that which is based on observed and measured phenomena and derives knowledge from actual experience rather than from theory or belief.

As with definitions of resilience there are different frameworks that have been proposed by different authors. Most of these frameworks are built around the definition and how they perceive resilience; as such there is no agreement on a single framework as this has depended on how resilience is framed. This section lists a few frameworks that are perceived to be significant for this study. In conceptualising resilience Bahadur et al (2010:14) suggest that there are two broad approaches. The first breaks down the process of suffering a shock and responding to it and identifies factors that will determine how the 'system' responds to the problem even though Levine et al (2012:3) have touted this as preferring simplicity and therefore not assisting in answering critical questions, such as: what is it that makes people more or less sensitive to crisis? The second approach develops frameworks around the characteristics that are deemed to 'make up' resilience. Such characteristics have approached resilience from widely different angles, and their usefulness lies precisely in enriching the diversity of the lenses used to examine resilience.

Levine et al (2012:3) argue that there is a missing debate on the role of humanitarian action in building resilience. There is an assumption that resilience building will help avoid crises and expensive humanitarian assistance. Mayunga (2007:5) contends that many conceptual frameworks that have been proposed to

measure resilience are limited as they tend to only focus on some or one dimension of resilience and do not adequately take the broader view of the concept. Schipper and Langston (2015:17) examined seventeen (17) resilience frameworks and concluded that for most, the indicators were not only un-aligned with the resilience criteria but that the frameworks themselves were highly diverse. Each framework was largely shaped by its conception and a contrast was only possible in some measure. Table 3.1 lists some of the resilience frameworks that have been promoted by various organisations and scholars in recent years and the year that they have been published. What is evident from the frameworks is that they all depend on how resilience is defined.

Table 3-1: Recent examples of resilience frameworks

AUTHOR	FRAMEWORK	YEAR OF PUBLICATION
Rockefeller Foundation	Asian Cities Climate Change Resilience network (ACCCRN)	**2014**
ARUP International Development	City Resilience Index	
Department for International Development	Building Resilience and Adaptation to Climate Extremes and Disasters framework (BRACED)	
United Nations International Strategy for Disaster Reduction	Disaster Resilience Scorecard for Cities	
International Institute for Sustainable Development	Climate Resilience and Food Security	**2013**
International Institute for Environment and Development	Tracking Adaptation and Monitoring Development (TAMD)	
United Nations Development Programme	Community-Based Resilience Analysis (CoBRA)	
United States Agency for International Development	Community Resilience: Conceptual Framework and Measurement	
Barret & Constas	Toward a theory of Resilience for International Development Applications	
Frankenberger & Nelson	Expect consultation on resilience measurement for food security	
Action Research for Community Action in Bangladesh	ARCAB Monitoring and Evaluation Framework	**2012**
Food and Agriculture Organisation	Self-evaluation and Holistic Assessment of Climate Resilience of farmers and pastoralists framework (SHARP)	
Feinstein International Center	Livelihood and Resilience Framework	
Twigg	Characteristics of a Disaster Resilient Community	**2009**

Manyunga	Capital-Based Approach to Community Disaster Resilience	**2007**
United States Agency for International Development	Coastal Resilience (Indian Ocean Tsunami Warning System Program)	
Elasha, Elhassan, Ahmed & Zakieldrin	Assessments of Impacts and Adaptations of Climate Change (AIACC) Sustainable livelihood approach	**2005**

Adapted from Schipper and Langston (2015:9)

3.12.1 Dimensions and properties of resilience

Some scholars (Caverzan & Solomos 2016:16; Bruneau et al 2003:737) suggest that resilience can be conceptualised along four interrelated dimensions, which are: technical, organizational, social and economic. Technical resilience refers to the response and performance of the physical systems when subjected to stress. Organisational resilience refers to the capacity and ability of agencies or organisations to respond to emergencies and carry out critical functions. Social resilience refers to the capacity to reduce the negative societal consequences of loss of critical services in the aftermath of catastrophic events. Economic resilience refers to the ability to reduce the direct and indirect economic losses resulting from adverse conditions. Arguably of these four dimensions, the social and economic dimensions are most pertinent to the performance and resilience of households and the community in the face of adverse conditions.

The process of reviewing the literature in an integrative way also yielded four main properties of resilience, which are robustness, redundancy resourcefulness and rapidity.

Bruneau et al (2003:737) explain these terms further as follows:

- Robustness: quality or condition of being strong, or the ability of a unit of analysis, systems and elements to withstand or overcome adverse conditions or demands without suffering loss of function or degradation.
- Redundancy: the extent to which a unit of analysis, systems or elements, exist that are substitutable, i.e., capable of functional equivalence in the event of loss of functionality, degradation or disruption.
- Resourcefulness: the ability to find quick and innovative ways to overcome difficulties or the capacity to identify problems, establish priorities, and

mobilise resources when conditions threaten to disrupt some unit of analysis, system and element.

- Rapidity: the capacity to be timely in meeting priorities and achieve goals in order to contain losses and avoid future disruption.

Ingalls and Stedman (2016:15) conclude “that the fundamental assumptions of the resilience framework are naive about, or even perhaps unable to engage with the workings of power as a social relation built on an asymmetrical distribution of resources and risks located in the interactions among, and the processes that constitute, people, places and resources”. As shown, a broad literature on resilience exists, yet the scholars cannot agree on a method of measure. The ability to accurately measure resilience has been continually identified as an important component in the reduction of both food insecurity and disaster risk.

The conclusion from this section is that resilience is conceptualised from four interrelated dimensions, which are technical, organisational, social and economic. The first two are well developed and understood while the last two (social and economic) are not fully developed. There is still limited attention paid by researchers to conflict, violence, and poverty in fragile and conflict-ridden contexts. Therefore, huge knowledge gaps exist in the application of resilience in the aforementioned contexts. A further scrutiny of the frameworks that exist in literature shows that they are largely deficient in their analysis of the interaction of political and socio-economic risks with shocks and stresses and how these impact fragile and conflict affected contexts institutions, and communities. On the second front, the section concludes that a resilient system should have the properties or attributes of robustness, redundancy, resourcefulness and rapidity. When this is put in practice, it means that for one using the system as currently structured and resourced there is confidence that it can survive a shock or disturbance, has the ability to respond to that disturbance if it is necessary to do so, and also has that capacity to learn and understand if there are factors that help or hinder that response.

While frameworks are important in building and conceptualising resilience, the various frameworks that have been defined above are complex and challenging to implement and all are built on foundations of the definition and understanding of resilience. As such in the analysis of Somalia it is important that an appropriate framework is built which is neither time consuming, neither complicated nor difficult to implement. The framework will pick some attributes from literature and will be rooted to the sustainable livelihoods approach, flexible and suitable for households in Somalia.

The next section discusses some measures that have been proposed for estimating general household and community resilience and more specifically resilience to food insecurity as a means of moving the resilience concept from a conceptual framework to a more operational tool.

3.12.2 Methods to measure resilience

While the debate on resilience rages on the importance of a valid measure, such a measure will bring to closure most of the arguments that have burdened the resilience concept since its inception and acceptance into the mainstream of academic and development realms. It is accepted that all measurements, especially of behaviours, opinions, and constructs are subject to fluctuations that can affect the measurement's reliability and validity. Reliability refers to consistency or stability of measurement, while validity refers to the suitability or meaningfulness of the measurement. In statistical terms, validity is analogous to unbiasedness while reliability is analogous to variance. Validity has evolved from a Trinitarian understanding "of content validity, criterion validity and construct validity to a unitary concept subsumed under content validity" (Brown 2010:32). It is vital to note that measurement validity is a fluid concept, and changes over time, becoming enhanced or contravened by new evidence or findings. Validation is thus "essentially a matter of making the most reasonable case, on the basis of the balance of evidence available, both to justify current use of the test and to guide current research needed to advance understanding of what the test scores mean and of how they function in the applied context" (Messick 1990:1487). The

validity of a resilience being in its infancy is thus facing a lot of revision and revalidation and will continue to be so as long as new information is generated and the concept becomes more elucidated. Although there have been advances toward making these multidimensional policy targets measurable, much work remains to be done. With resilience measurement there are principally two major obstacles impeding further progress which are inadequate data with which to measure changes in biodiversity, poverty and other components relevant to policy targets and secondly the general immeasurability of the target of interest, often on its account of being poorly understood, un-quantified and its being a complex concept (Reyers et al 2013:268).

There are several models in literature for measuring resilience, each with their own limitations and strengths. A number of organisations that include the FAO, University of Florence, University of Tulane, Oxfam Great Britain, Africa Climate Change Resilience Alliance (ACCRA) and USAID “take a multi-dimensional approach to measuring resilience, though they employ different types” of analysis (Frankenberger & Nelson 2013:3). The University of Tulane methodology was used after the Haiti Earthquake and from its analysis it is most suited for rapid onset disasters as it involved a lot of recall of the previous time from the participants. However, its strengths lie in the use of multi methods research techniques, the consultative process with stakeholders and communities and lastly its focus on all levels that included individuals, households and the community. FAO developed two methods to measure resilience, which are the Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists (SHARP) and the Resilience Index Measurement and Analysis (RIMA). SHARP is a self-administered assessment survey used by pastoralist and farmers in which each question “is linked to one or more resilience indicator, which can be used as a proxy for the level of climate change resilience of farmers and pastoralists. The SHARP tool is implemented in three phases, which are a participatory self-assessment survey”, (FAO 2016:12) a gap analysis coupled with an assessment of responses at local level and the third phase combines this information with climatic data to then influence farmers’ practices,

training curricula and inform policy development at local and national level. The FAO's RIMA model involves the development of a suite of latent variable indices, which are then used to compute a resilience index on which comparisons can then be made (Alinovi, D'Errico, Mane & Romano 2010:17; Frankenberger & Nelson 2013:3). The main disadvantages of the RIMA methodology are that the results take time to come by as they involve panel data and might not be suitable for conflict prone areas where data changes are rapid and people are not sedentary. The measurement also relies on secondary data such as Household Income and Expenditure Survey and Living Standards Measurement Study, which should be collected beforehand. However, in cases such as Somalia where data reliability is a problem then the reliability of these results is questionable. The scores are usually plotted for comparison of locations or livelihood groups. The University of Florence expands on this approach by applying it to a specific event producing a single agricultural resilience index composed of eleven latent variables inferred using factor analysis. The University of Florence measurement is based on a multivariate analysis approach in view of the understanding that resilience is a latent variable and as such not directly observable. The large amount of data required and the level of detail required for computing the resilience index limit the approach's usage for poor literacy users. Added to this is that it is impossible to carry a quantitative assessment for the whole population, or for people with different livelihood strategies. This limit both its use to one strategy group and the comparability of the data. The approach also seems more inclined to dealing with single strong shocks as opposed to stresses, which are often experienced by households' more than strong shocks.

In measuring resilience in the Sahel and the Horn of Africa, USAID used a multi-dimensional approach and this model is premised on the computation of indices on six resilience domains which "contribute to and collectively constitute" resilience which are food access and income, assets, governance, safety nets, health and nutrition and adaptive capacity (Frankenberger & Nelson 2013:3). Different from others, Oxfam and ACCRA's multi-dimensional approaches involve identifying the resilience characteristics in spite of the occurrence of a

shock.

Other approaches on the other hand attempt to use household coping or adaptive strategies that are employed in response to stressors and shocks as a way of measuring resilience. Some employ outcome monitoring, which includes tracking the stability of indicators of well-being. Again, certain approaches consider panel data, which is highly regarded as among the best sources of data for measuring resilience. The review of the United Nations Development Program (UNDP) Community Based Resilience Analysis (CoBRA), FAO-WFP-UNICEF's Mixed Methods Model, and Technical Assistance to Non-Governmental Organisations (TANGO) Resilience Determinants Analysis approach identified the absence of a 'resilience threshold', which is a level of attainment of the key factors a household needs to be deemed 'resilient'.

The CoBRA methodology is largely qualitative and uses participatory methods to identify resilience characteristics. It is a relatively easy and less expensive method to collect information compared to some quantitative approaches that have been employed in the past. It however suffers from not being a stand-alone measure of resilience, and that it is not capable of giving a quantitative measurement of the proportionality of resilience in a given measured community. In addition, the obtained scores of resilience attainment are intuitive and do not pass the statistical rigours (UNDP 2014:9). The CoBRA is also designed for assessment of resilience within communities as opposed to the households. Nonetheless it does stand tall for the HoA region as it was developed specifically for this region and has been field tested in Uganda, Kenya and Ethiopia. Nardo et al (2008:2) advocate the use of composite indicators citing their main virtue being the ability to summarise complex and sometimes elusive issues in wide ranging fields. The currently existing surveys seem to have huge differences in terms of how they define what they intend to measure and the methodologies they subsequently employ to measure it.

Another tool for measuring resilience is the Conjoint Community Resiliency Assessment Measure (CCRAM), which is a multidimensional assessment of

community resilience. The CCRAM is made up of two instruments, which are (1) a demographic self-report which covers some personal experience information related to resilience, and (2) a checklist that evaluates the presence of infrastructure and the availability and accessibility of services in normal and emergency situations. The data collected using the CCRAM process stored and used by decision makers and authorities to monitor changes and adjust public policies so as to ensure effective responses to emergencies (Cohen et al 2013:1733). The CCRAM however measures resilience at the community level as opposed to the household level. It seems to be also inclined towards more urbanized societies as shown by its focus on local government structures such as mayors, regional and local councils. It might therefore not be appropriate for communities such as Somalia where governance structures (leadership) are not very strong and there is movement of people due to insecurity, which makes the place attachment key element difficult to estimate.

The other organisations that have developed some resilience measurement tools include CARE International who developed a resilience measurement tool known as the Climate Vulnerability and Capacity Vulnerability and Capacity Analysis (CVCA). This tool gives a stimulus to analysis and dialogue on resilience at the community level through integrating climate change into a wider participatory vulnerability analysis. The results provide a solid foundation for the identification of practical strategies to facilitate community-based adaptation to climate change. Feinstein International and Tuffs University have developed Livelihoods Change Over Time Method (LOTC), which is a panel survey over two years. The International Institute for Sustainable Development (IISD) developed the Community-based Risk Screening Tool – Adaptation and Livelihoods (CRiSTAL) CRiSTAL adopts a food systems and resilience approach in order to understand and reduce the risks that climate variability and change pose to community food security.

The measurement of resilience in fragile states such as Somalia is even more complicated. The word ‘fragile states’ has been used by Mcloughlin & Idris (2016:5) as those countries where governments are typically incapable of

assuring basic security to their citizens, cannot maintain the rule of law and justice, and are unable to provide basic services and economic opportunities for their population. The measurement of resilience in these states is challenged by several factors that include; the dearth of reliable information, records and documentation upon which to base policies, difficulties to establish baselines and indicators in order to measure the impact and progress of programming. It can also be difficult to connect early warning systems to appropriate response mechanisms and the fragile countries themselves often have minimal capacities to absorb development assistance. These challenges will only amplify the impacts of climate change on state, community and individual vulnerability, and complicate the design and delivery of response strategies (Crawford et al 2015:2).

What can be deduced from literature is that there has been significant improvement in understanding of resilience as evidenced by a continuing discourse and literature including new associated frameworks. It is clear that tools and indices have expanded resilience assessments and increased learning on how to deal with threats and shocks across political, social, economic, and environmental spheres. It can be concluded that “measuring resilience on a wide scale remains extremely complicated and expensive, limiting its application in resource-constrained settings. In addition, complementary approaches are required to enable authorities, even in fragile and conflict-affected settings, to readily examine key factors for which data is available and that are proven to enhance resilience” (Bosetti, Ivanovic & Munshey 2016:5).

This section described how a range of methods have been employed to measure resilience at different levels and the frameworks that some of the methods have been based on. The section also analysed the advantages and challenges of the different methods in relation to their applicability on the ground. The next section highlights focus on how subjective household resilience can be employed as a tool to measure resilience to food insecurity and goes further to explain how the subjective approach offers a more inclusive and bottom-up based approach to resilience measurement.

3.12.3 Subjective measurement of resilience

Most of the methods described above have weaknesses which include difficulty to identify all appropriate and relevant traits and indicators that may influence a household or a community's resilience to food insecurity. Jones and Tanner (2017:232) go further to offer subjective measure of resilience, as an alternative method as "it relates to the notion that a person's resilience is comprised not only of tangible objective elements, but also wider social, cultural and psychological elements". On the other hand, quality of life is a broad multi-faceted construct that requires both subjective and objective measures for an ideal appraisal. As such, the measure of resilience should be determined by the feelings of the people concerned, their perception to life and the conditions that they live in and should rely on self-reports.

One aspect of quality of life is subjective wellbeing, the person's own evaluation of his or her life. Subjective wellbeing is an important component of quality of life because it is based on an individual's own appraisal and therefore relies on what the person believes is important, based on his or her own standards. In contrast, objective measures depend on decisions made by academics or policy makers who decide what is desirable and the weights to be given to each variable. In some quarters there is concern that subjective measures are soft, however there is now evidence to suggest that measures of subjective wellbeing have substantial validity and reliability and are not invariably contaminated by response artefacts. Despite the favourable measurement evidence, it is true that self-report measures of subjective wellbeing can be influenced by momentary factors and memory bias. One limitation of employing only subjective measures to access quality of life is that people have a tremendous capacity for adaptation. Thus, it is not wise to rely only in subjective measures to access the quality of life, as psychological and cultural elements will inevitably lead to bias. This is because socio-ecological change has different meanings among individuals as they place different boundaries to components such as ecological or livelihood constituents or may carry emotional and cultural ties to locations and activities.

Andrachuk and Armitage (2015:12) argue that the desirability of different social-

ecological systems “identities is thus normative and subjective, and that influences our characterisation of socio-ecological transformations in terms of system identity”. Establishments “about the occurrence of transformations often depend on where one sits in the system” and whether social-ecological systems change challenge or aid their own interests. Jones and Tanner (2017:234) conclude that the “assessment of subjective resilience is more of a bottom-up process as it relies on self-assessments and account for cultural measurement biases and the effects of emotions and norms as seen in the measurement of subjective well-being”.

The subjective measure of resilience is more suited for rural and poor resource communities who are in most instances targeted by humanitarian agencies for resilience-enhancing interventions and activities. The method is fulfilling in that it gives voice to members of the community who ordinarily would not be able to tell their stories and life experiences. Walsh-Dilley and Wolford (2015:173) demonstrate that “paying attention to the grounded and embedded meaning-making around resilience reveals that resilience knowledge is itself a terrain of struggle, and thus resilience definitions, priorities or interventions are themselves political arenas and thus calls for greater attention to the ways in which subjective meanings and discourses condition understandings of socio-economic vulnerability and resilience, treating both terms not as predetermined concepts, but as objects of analysis in and of themselves” (Walsh-Dilley & Wolford 2015:179).

The use of subjective measures is present in literature as cited by Scali et al (2012:1) who argue that resilience can be quantified using specific scales. The common measure that is advocated by this research focuses on a subject’s self-evaluation of prior experience in successfully overcoming stressful events and positive changes. This self-evaluation requires the presence of a stressor and the participant’s recollection of their response to it. In the context of Somalia, the drought (food insecurity) is treated as the stressor and the households are thus able to recall how they responded to it. The Connor-Davidson Resilience Scale (CD-RISC) is one such scale that has been developed to measure resilience to

trauma exposure and anxiety disorders successfully in some contexts. Subjective Well Being (SWB) is also one phenomenon that depends on the perception of the subjects and has been measured and documented successfully in literature. Dolan and White (2007:71) argue that the view of SWB in terms of the ability to fulfil desires or satisfy preferences is more acceptable and has more influence on current policy.

Clare et al (2017:19) mention three benefits of subjective measures of resilience which are; improving the understanding of the drivers of resilience, reducing the questionnaire burden on respondents and providing valid cross-cultural comparisons of resilience. This is because there is confirmation from the disciplines of psychological and wellbeing resilience that approaches that incorporate subjectivity can produce reliable data associated with and predictive of positive life outcomes. The reduction in questionnaire burden on respondents can only be a relevant factor where the main goal of the data collection tool is focused on determining the level, instead of the drivers, of resilience. However this can work where a comprehensive baseline exists and the objective of subsequent monitoring is on the level's progression. In providing valid cross-cultural comparisons, subjective resilience measurements could be more appropriate as they are situated within the contexts of the shocks or perturbations and therefore might be more accurate in giving an individual's perception in the present and in the future.

Subjective and qualitative measures are important the analysis of resilience, resilience analysis, despite that in most instances they are not the primary analytical method. This is because qualitative methods give insights into social factors, for instance understanding conflict dynamics, the trade-offs made by people including complex phenomena such as learning and innovation, the quality of services, learning and capacity. They encourage mixed research methods that allow for a mixed method analysis that facilitate more comprehensive elucidation and prediction of resilience outcomes (Maxwell et al 2015:6).

Subjectivity has a shorter history in resilience measurement as compared to objective measurements with most of the literature in this subject having been published from the year 2007. There have however been increases in the attempts to either have standalone subjective measurement or to embed some subjectivity into objective measurements. Most of the reviewed subjective methods borrow very heavily from risk perception and psychological resilience, which have been in literature for a long time. The decision on which method to use should be driven by epistemology, the principal measurement objectives and available resources and data.

3.13 THE CHALLENGES IN MEASURING RESILIENCE

As it is difficult to come up with a definition of resilience, the same difficulty is extended to measuring it. According to Frankenberger et al (2012:32) “it is useful to make the distinction between *general* resilience and *specific* resilience from the start when designing systems to measure resilience and priority should always be given to approaches that engage local actors and the affected communities themselves in assessing the success of interventions in ways that are meaningful to them”.

It must also be noted that resilience cannot be characterised by a single, easily specified or quantified variable (Chesterman & Downie 2014:10). It is rather, an accumulation of multiple variables across multiple systems that in their dynamic interaction represent the ability of interconnected systems. The process of building resilience is seldom a linear, cumulative process, but a dynamic interaction between components or variables. Attempting to anticipate and comprehend these dynamics and their impact on resilience remains a major challenge. The key emerging elements of resilience that are summed up by various authors (Chesterman & Downie 2014:7; Frankenberger & Nelson 2013:3; Luedeling et al 2014:22) include a contextual, flexible and a qualitative process that accounts for cultural factors. Frankenberger and Nelson (2013:3) add that the “main unit of analysis in resilience measurement is the household”.

There is an agreement by several scholars that “resilience measurement must involve sustained, low cost but higher-frequency surveys” and include sensitive indicators at multiple levels (Headey & Ecker 2012:8; Constas & Barrett 2013:8; Barrett & Headey 2014:6). Besides disagreements over the definition, (Hubbard & Millar 2014:6; Fitzgibbon 2014:4) the issue of measuring resilience has proved to be a tricky subject in the Horn of Africa due to the absence of basic livelihood data such as human and livestock census.

The lack of a logical and consistent theory of development resilience has hindered measurement. There is the obvious need to work towards reliable quantitative and qualitative estimates of the well-being and the supporting natural resource base. Once these are estimated, they can then be used to predict the likelihood of being poor over time which can be transposed to classify individuals, households, and communities as resilient or not (Barrett & Constas 2014:14629).

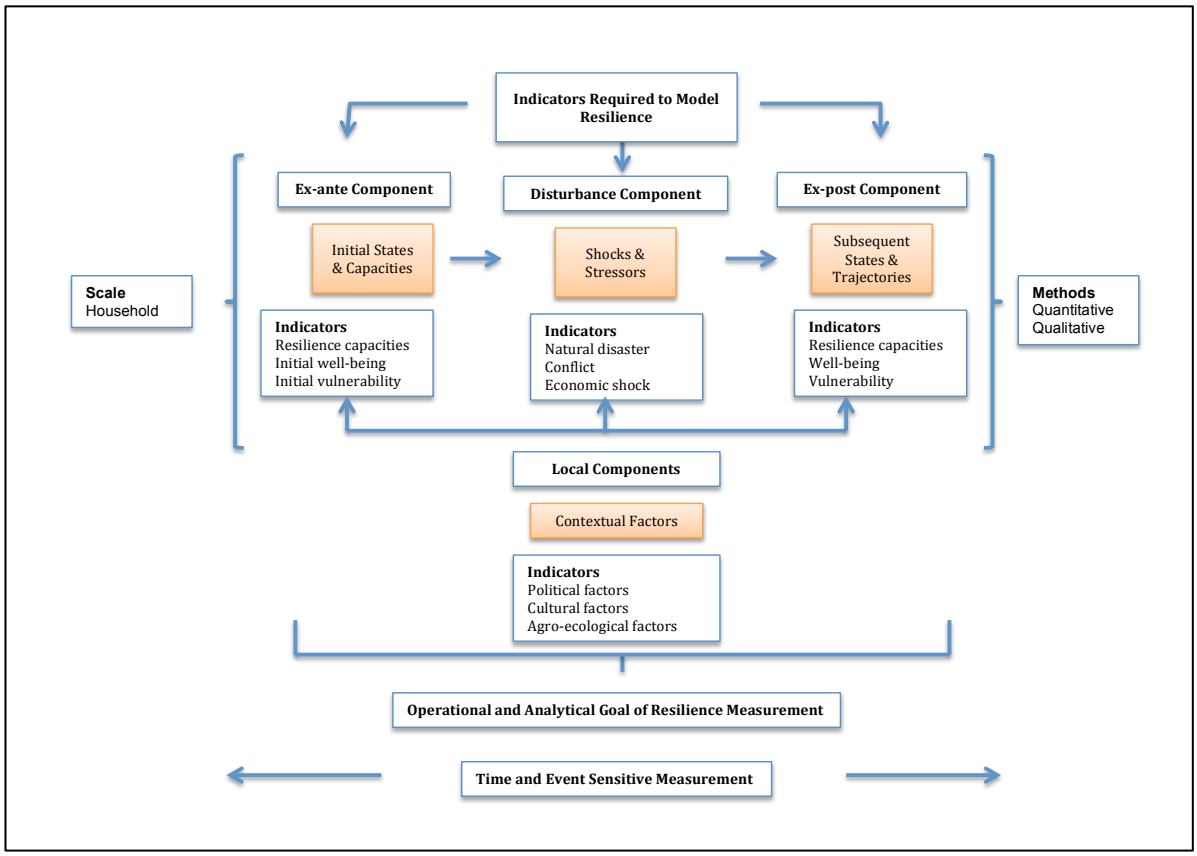
Subjective resilience is not without its challenges; Maxwell et al (2015:11) indicate that some of the challenges in using subjective measures are how to meaningfully consolidate information into a single analysis. In most examples, quantitative methods are the main analytical framework, with qualitative data being used for triangulation. However improved utilisation of qualitative data and inclusion of respondents’ points of view and aspirations could result in improved prospective analysis. Maxwell et al (2015:11) conclude that resilience being “a complex phenomenon; multiple methods are required to understand it and to act to support or build it”.

3.14 CONCEPTUAL FRAMEWORK

As has been explained in section 2 of this chapter, antecedent conditions are important in the measurement of the resilience of a system. As such the capacity to be resilient to food insecurity depends so much on the prevailing conditions prior to the shock or stress. In as much as a boost in ‘capacities’ is by definition an output, the measurements of capacities should be kept at the same output level as well. A frequently cited delineation of the different resilience capacity components is the differentiation between absorptive, adaptive and

transformative capacities. This profusion of terms indicates the mutation of the resilience concept from originally limited focus into a more elaborated concept. This broad explanation embraces the ability to adapt and transform and not simply bouncing back. The different reactions can also be linked to different magnitudes of perturbation or change. “The lower the intensity of the initial shock, the more likely the household will be able to resist it effectively” (Béné 2013:10). However, in an instance where the absorptive capacity is surpassed, the individual resorts to utilisation of adaptive resilience. Ultimately, when the required change is too extensive that it inundates the adaptive capacity of the household, transformation happens. In “that case, changes are not incremental any longer. Instead they are transformative, resulting in alterations in the individual or community’s primary structure and function” (Béné et al 2014:602). As such, “these three elements are an analytical and measurement framework aimed at a better understanding of what exactly strengthening resilience means” (Winderl 2014:7). The undertaking of advancing the resilience measures was conceptualised and implemented as shown in Figure 3.2 below.

Figure 3-2: The resilience causal framework



Adapted from Constas et al (2014:14)

Figure 3.2 shows that there are transitions in indicators from the ex-ante stage, to the disturbance stage and finally to the ex-post stage. This shows the lineage to the systems thinking phenomenon of cause – effect thus the above illustrates a causal pathway.

As previously mentioned that life is complex as such, the understanding of causality is not simple. Some of the criticism of the systems approach in general is that there is an assumption that all systems are similar yet there are important differences that need to be considered. Siporin (1980:519) argues that the systems theory is weak in that it tends to over-concern itself with self-regulating homeostasis, fails to recognize that feedback may be deviance-amplifying and not result in corrective action. The rationality of human beings and particularly of decision-making and problem-solving is over estimated. Other scholars such as

Stojanovic et al (2016:2) offer four criticisms of systems approach in socio-ecological systems. The first critique is focused on that systems approaches depoliticise represented situations leading to existing social relations being taken for granted. The second critique is that applying a systems approach chooses a method that suits the necessities of systems modelling instead of an accurate representation of social entities. The third critique is that systems approach inadequately conceptualise socio-ecological complexes through having weaknesses to capture certain societal realms and realities, and as a result failing to utilise associated technical strategies like the double hermeneutic. A fourth and final critique concerns a lack of explanatory power, and bias in explanations, generated by the preceding assumptions. Certain explanations could be circumvented because of a strong focus on the external interactions that end up neutralising social and internally envisioned normative values, which could have a profound influence on behaviours and environmental outcomes.

Despite the above criticism, this pathway is useful in telling the story of how it all began and ended, and it is critical that the sensitivities of time and events are taken into consideration in viewing the causal pathway. As such, resilience can be linked to disturbances and to changes in wellbeing measured at non-arbitrary periods. Data collection for resilience measurement can be simplified to a simple design where resilience measurements are taken before and after an event. It is also too critical to consider the impact of a given intervention as part of resilience measurement planning to obtain reasonable results. Of equal importance is the consideration of indicator fluctuations which might be influenced by season or other related factors.

3.15 CONCLUSION

The literature review discusses various complications with the concept of resilience; these are summarized in the four domains that have been described which are; comprehension, conceptualisation, operationalisation and measurement. This is due mainly to the transition of the concept from pure sciences to socio-ecological systems. The literature has explored the history of

resilience and traced some of the definitions of the concept and adopted a definition that is more relevant for this research. In discussing the conceptualisation, four properties of resilience systems are discussed, and these are; *robustness, redundancy, resourcefulness* and *rapidity.* The operative factors that contribute to the understanding of resilience include; *access to resources and political power, social capital and social networks, beliefs, cultures and customs, socioeconomic and demographic characteristics, special needs population, type, density of infrastructure and lifelines.* The literature concludes by pursuing subjective resilience as an option of measuring the attainment of resilience. This is because interviews of ordinary people through an ethno-sociological approach to life stories can assist to comprehend the different and possible resilience processes and dynamics and their presence or absence in a society and in a specific community beyond the importance of social relationships to cope with or face disasters. While resilience has been taken up in diverse, scattered, contradictory sites and domains there is however a commonality across this distribution, which is the generality and flexibility of resilience that names a positive future, or desirable conditions of possibility, yet makes no promises.

The next chapter looks at the methodology used in this research through explaining the mixed methods research designs and how the methods combine into one study giving strength to each other. The chapter will explain how the qualitative techniques were used to test the fitness of the selected variables to the local context while on the other hand the quantitative data built on the qualitative findings and also helped in the interpretation of the results.

CHAPTER 4 : RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

This chapter describes the design and methodology that was followed in this research and gives the justifications for selecting both the design and the methodology. The chapter also gives insight into the data collection tools, explaining the rationale of their selection and deployment. This is so, as has been argued in the previous chapter that there are no standard indicators that can be used to measure the attainment of resilience in general including resilience to food insecurity in particular. It is imperative that an essential point of departure in the study and furtherance of the resilience scholarship should be coming up with benchmarking and measurement tools that help to better understand the factors that contribute to resilience and the effectiveness of interventions that are designed to build and sustain it. These tools should be easy to use and generate reliable data for them to be fully adopted by the users.

As such, the chapter is concerned with two issues: the first is the identification of very easy and simple questions that could be used to evaluate resilience to food insecurity. The second part is testing these questions (indicators) in the context of Somalia in general with Luuq district as the specific location. The methodology followed in this research leans a lot on the subjective measurement of resilience as opposed to other measures that have been cited in literature.

The chapter is divided into six sections. The first section opens with an argument for the interpretive paradigm and subjectivity as the anchors of this study. The second part deals with the setting of Luuq giving a sweeping overview of how the area studied is constituted. In the third section the overall research design is explained, justifying the choice of using mixed method research. In the fourth section, a methodological framework is given for the types of data that were collected. In the same section, a case is made for both the qualitative and quantitative methods including the actual ways in which these methods were employed in this research. The fifth section of this chapter discusses issues to do with data quality emphasizing on methods of validating the findings of the

research. The sixth and final section deals with the research ethics that were followed in this research and how these meet both the university and international standards.

The next section explains the research's inductive approach and its epistemological underpinnings in interpretivism. The section presents arguments on why the interpretivist approach is preferred over other approaches especially about resilience.

4.2 THE INTERPRETIVISM RESEARCH PARADIGM

As opposed to positivism, which views human beings as scientific objects to be studied, this research took an interpretivism approach. The interpretive or phenomenological paradigms are based on personal knowledge and subjectivity and emphasize the importance of personal perspective and interpretation. The behaviour of human beings is strongly influenced by the environment and in turn humans are also influenced by their subjective perception to their environment. Thus for interpretivist, what the world means to the person or group being studied is critically important to good research in social sciences (Willis 2007:7). For interpretivist the concept of verstehen is the goal (O'Reilly 2009:120). This concept in its strongest sense implies reliving the experience of the actor while its weaker sense it involves reconstruction of the actor's rationale in making certain decisions (Martin 2000:1). This is an approach that seeks to understand people as they make attempts to make sense of their worlds. Interpretivism thus focuses on exploring the complexity of social phenomena with a view to gaining understanding. Interpretivists believe that social reality is subjective and nuanced, because it is shaped by the perceptions of the participants, as well as the values and aims of the researcher (Vosloo 2014:301). O'Reilly (2009:119) describes interpretivism as a "term that refers to epistemologies or theories about how we can gain knowledge of the world, which loosely rely on interpreting or understanding the meanings that humans attach to their actions". Interpretivists "believe that the subject matter of the social sciences is fundamentally different from that of the natural sciences. Consequently, a different methodology is

required to reach an interpretive understanding and an explanation that would enable the social researcher to appreciate the subjective meaning of social actions. Reality should rather be interpreted through the meanings that people give to their life world. Hence, the approach to social phenomena for the current study reflects the currently common construction of knowledge that tends to lean towards a preference for methods, which do not only produce facts, but also analyse and describe the meaning of the social world" (Vosloo 2014:307).

4.3 THE RESEARCH CONTEXT

This study asked people questions about how they perceived their levels of resilience to food insecurity, through a series of methods that involved both qualitative and quantitative approaches. While there are a lot of ways of collecting data on subjective matters including resilience, each method comes with its biases and challenges. Part of the research initiative was to design and select instruments that ensured robustness and utility of subjective information.

As the agriculture season in Luuq runs from April to November, the period of this research focused on the agriculture season of 2016. In general, the agriculture season is divided into two based on the rainfall pattern. The major rainy season (*Gur)* runs from the month of April to July followed by a dry season. The minor rainy season (*Der)* is from September to November. The agriculture season of 2016 ended in a severe drought, with extensive growing season failures and record low vegetation. The main rainy season was below expectation while the minor season largely failed across Somalia. The cumulative rainfall from August to November showed extensive and extreme rainfall deficits with areas of southern Somalia registering only a third of the usual rainfall.

Given the multifaceted nature of resilience, semi structured and open-ended questions were administered. These allowed the interviewees to reflect freely on the resilience question. This method allowed for rich quantitative and qualitative specifics to be gathered. The major advantage of the approach was that the survey could be rapidly administered, coded and interpreted easily, the questions were standardized and more importantly, they were in addition easily quantified.

4.4 RESEARCH DESIGN

According to Vogt (2005:276) a research design is “the science (and art) of planning procedures for conducting studies to get the most valid findings”. This is a rational construct of an investigation that systematically links the research questions with the evidence that is collected and analysed.

Based on the research questions and the aim of the research, a mixed method research was selected to explore, describe and explain measuring resilience to food insecurity through flexible methods that allowed for detailed data and interpretive analysis that sought to reflect participants’ perspectives. The mixed methods research combined quantitative and qualitative methods in collecting data for this study.

4.4.1 Mixed method research

Creswell (2008:526) defines mixed methods as “research in which the inquirer or investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of study”. The primary reason of combining these methods was to strengthen the findings of the research. The qualitative results were used to triangulate the findings from quantitative data collection process.

4.4.1.1 Rationale and purpose

The rationale of using the mixed method research is that using both qualitative and quantitative approaches provides a more unified understanding of the subject under research than either approach on its own. Another reason is that the researcher wants to better explain the results of the study. This is further strengthened by DeCuir–Gunby (2008:125) who asserts that “in order to estimate the relative contributions of trait and method variance, more than one trait as well as more than one method must be employed”. In combining both qualitative and quantitative methods the researcher aimed at having the methods enhancing each other, through balancing the strengths and weaknesses. As agreed to by Lieber and Weisner (2010:560) the decision to employ a mixed method brought this researcher closer to a full representation of social phenomena.

While acknowledging the reasons that the research presented for a mixed research approach, not all scholars agree that mixing methods is the best alternative. Bergman (2008:6) argues that mixed methods designs are just a fashion or fad being employed by many researchers to improve the marketability of their project proposal or publication. This however is usually the case when there is no balance between the qualitative and the quantitative part and when there is hardly a connection in their conceptualisation or execution. There are some strength and weaknesses that are unique to mixed methods research that are outlined below.

4.4.1.2 Weaknesses

Among some of the weaknesses of mixed methods are that:

1. There is no agreed-upon language for discussing mixed methods studies such that when mixed methods terms are used, they are often employed in very different ways by authors (Bergman 2008:88).
2. It is not entirely clear what is involved in bringing quantitative and qualitative research together as some of the details of mixed research methods are work in progress (Johnson & Onwuegbuzie 2004:21).
3. The heavy demand on resources due to lengthy data collection and result analysis phases (Hewson 2006:180; Bergman 2008:80).
4. The need for versatility on the researcher in terms of being conversant with both quantitative and quantitative approaches which calls for greater skill set (Bergman 2008:79; Johnson & Onwuegbuzie 2004:21).
5. The perceived unclear compatibility between the two methods, which leads to concerns on result validity (Johnson & Onwuegbuzie 2004:21).

While there are some limitations in the use of mixed methods research, the combined ability of both quantitative and qualitative methods is appealing to many researchers. In essence, it can be considered the best of both worlds (DeCuir–Gunby 2008:126). Mixed methods approaches have been widely used in a variety of disciplines such as humanities, social sciences and natural sciences. In addition, mixed methods research is growing in popularity in

disciplines such as business (DeCuir–Gunby 2008:126). The Table 4.1 below lists the weaknesses and the processes that were adopted to cater for these weaknesses so that they did not hinder the quality of this research.

Table 4-1: Weaknesses and mitigation of the Mixed Method Approach

WEAKNESS	MITIGATION
There is no agreed-upon language for discussing mixed methods studies such that when mixed methods terms are used, they are often employed in very different ways by authors.	This is mentioned as a weakness so as to encourage discourse among scholars to map this emerging field of research and add their contributions to growing discussions.
It is not entirely clear what is involved in bringing quantitative and qualitative research together as some technicalities of mixed research methods are work in progress.	The researcher collected multiple data using different approaches, strategies and methods in such a way that the combination resulted non-overlapping weaknesses. but complementary strengths.
The heavy demand on resources due to lengthy data collection and result analysis phases.	The researcher dedicated enough time and resources for the exercise as there was clearly more benefit in the mixed method versus using a single method.
The need for versatility on the researcher in terms of being conversant with both quantitative and quantitative approaches which calls for greater skill set.	This was not an issue as the researcher has strengths in both qualitative and quantitative approaches and so were the team leaders.
The perceived unclear compatibility between the two methods, which leads to concerns on result validity.	In this study the quantitative approach was used as the primary source of information with the qualitative research topical outlines being drawn from the quantitative results. This ensured that the two methods had a perfect fit.

4.4.1.3 Strengths

While the mixed method research has strengths that however outweigh the weaknesses in this research, the noted weaknesses include:

1. The ability to generate and test theory, the capability to answer complex research questions, and the possibility of corroborating findings (DeCuir–Gunby 2008:126).
2. The potential for gaining a more solid understanding and appreciation of the research questions through combination of approaches (Hewson 2006:180).
3. The benefit of one approach informing the other thus leading to complementarity and cross checking.
4. It offers multiple ways of seeing and hearing, multiple ways of making sense of the social world, and multiple standpoints on what is important and to be valued and cherished (Greene & Hall 2010:124).
5. Offers greater confidence in the inferences to be made which go beyond convergence or consonance, as in triangulation and also gives more scrutiny to divergent or dissonant views leading to more careful scrutiny of data patterns and warrants, ideally leading to new insights, perspectives, and understandings (Greene & Hall 2010:125).
6. It offers opportunities to meaningfully engage with differences such as culture, ethnicity, gender, religion and tradition (Greene & Hall 2010:125).

4.4.1.4 The mixed method research model

The data collection model was planned to be sequential as illustrated on the diagram and plan below. The research design, as argued by Salkind (2010:1253) is a logical structure that guides the investigator to address research problems and also respond to the research questions. The plan or model below illustrates how the different research methods were used in this research and how they intersected with each other giving feedback and validity of the results. Figure 4.1 gives an outline of the research process, the questions that each stage sought to address and the possible ways in which different methods were integrated.

Figure 4-1: The mixed method research path

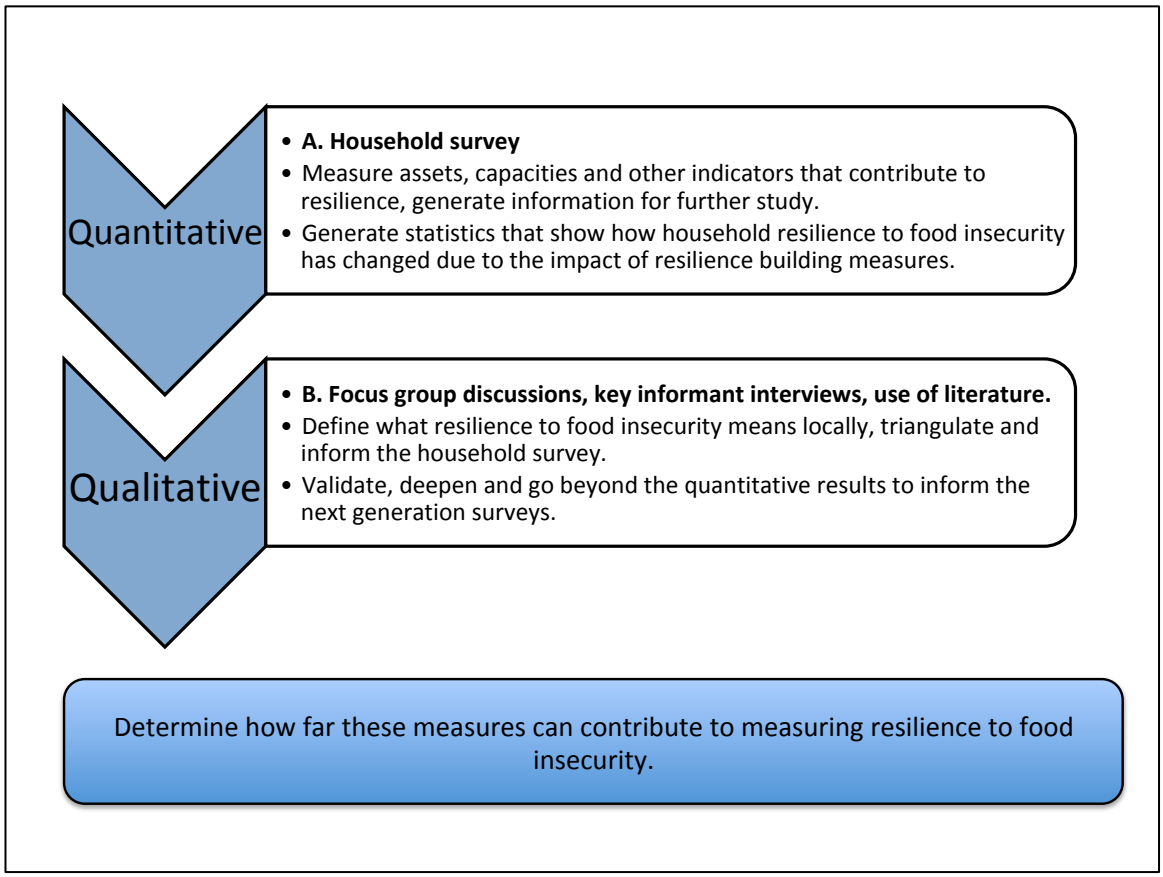


Figure 4.1 shows that while the quantitative process took the initial stages of the research, the qualitative process was used to qualify or seek further explanations of the trends and phenomenon that arose from the quantitative process.

4.5 THE RESEARCH METHODS

This section explains the mixed method approach through discussing the qualitative and quantitative methods. Firstly, the qualitative research method is described followed by the quantitative method. For both methods the data collection procedures are described and justified and finally the methods of data analysis are explained.

4.5.1 Quantitative Methods

The quantitative method focused on, collecting and analysing information in the form of numbers and collecting scores that measured distinct attributes of

resilience to food insecurity at the household level. A quantitative research project is characterised by having a population for which the researcher wants to draw conclusions, but it is not possible to collect data on the entire population. “It is necessary to select a proper, statistical random sample and then generalise from the sample data to the entire population using statistical inference” (Given 2008:725). Since “the fundamental philosophy underlying quantitative research is positivism”, measurement is necessary for sound inferences to be made. As such “appropriate mathematical procedures must be used for the statistical analysis required for hypothesis testing” (Salkind 2010:1166).

The questionnaire was the main data collection tool that was used for quantitative data collection. Interviews and observations were used to inform the development of the questionnaire and grounded the survey questions to the local context. Secondly, a cognitive pretesting was conducted. Based on the results of the pretesting some questions were re-coined to capture the exact needs of the survey, the response options were narrowed to reflect most of the outcome of the pre-test and the total number of questions on the data collection tool were reduced to 40 questions.

While the thrust of this research lies in mixed methods, the strength of quantitative methods is that they may be used to develop reliable descriptions and provide accurate comparisons. In the exploratory phase of an investigation, quantitative methods can identify patterns and associations that may otherwise be masked. Quantitative methods can also be used to test out theories about how causal mechanisms operate under particular sets of conditions (McEvoy & Richards 2006:71). Some critics of the quantitative method point out that in some cases “summary quantities can be too restrictive and may not tell the story the way it should be told and some shortcomings are in regression studies where a single data point that is away from the cluster of the remaining observations can have a large influence on both the regression line and the correlation coefficient” (Iversen 2004:897) and again some “qualitative researchers tend to criticise these methods on the basis that they do not pay attention to social meanings and

the ways in which the world is socially constructed" (McEvoy & Richards 2006:251).

On the other hand, quantitative research tends to be associated with the realist epistemology and allows for easy tracking of changes over time. The data collected is associated with high levels of reliability due to the possible considerable statistical analysis, which allows for testing of hypotheses over time and the evaluation of the efficacy of interventions in various area of interest, including social policy.

4.5.1.1 The study population

The study population consisted of all the households of Luuq District as sampled by the formula below. According to UNFPA, in 2014 Luuq District has an estimated population of 97,079 people. Luuq's rural communities are in an agro-pastoral livelihood zone within 3-5 km of the Juba River. Luuq Town is the district's only semi-urban settlement and serves as an economic and market hub for agricultural trading and some poor households rely on the town for petty trade and casual labour. Within the district the population exists within set settlements that can be characterised as Rural, Urban/Town and IDP camps. The characteristics of the different locations are described in the paragraphs below:

- Luuq Town: this is an urban setting with strong infrastructure, including business centres, government offices, health care services and schools;
- Luuq IDP Camps: these are holding camps with limited infrastructure; the households live in temporary structures and rely on services offered mainly outside the holding camps; and
- Rural: very little infrastructure, and pastoralism/farming are the dominant livelihoods. Rural areas require travel to village centres to access shops, health care, education and markets.

Luuq's dominant clan, the *Marehan* runs the local administration in a clan- based system with little influence or support from the Somalia Federal Government (SFG). Power sharing provides stability, with minority Rahanwye clan.

4.5.1.2 Sampling procedure

As it was impossible to administer the questionnaire to all the households in Luuq, a sampling procedure was adopted. In general, determination of sample size boils down to three major considerations which are; first, the amount of sampling error that can be tolerated, secondly, the amount of "variability in the dependent variable", and lastly the cost of gathering data about additional observations (Greenstein 2006:112).

4.5.1.2.1 Stratified sampling

According to Wright and London (2009:55), sampling is the process by which cases are chosen from a population. The population of Luuq is 97,079 people made up of 12,135 households. This is based on the assumption of 8 persons per household (the initial estimate was 6 people based on UNFPA 2014:49, and then adjusted to 8 persons based on the pre-test survey). The sample size for the entire population was calculated using the formula below labelled as Equation 4.1:

Equation 4.1: Sample size formula calculation

$$n = \frac{\frac{z^2 p(1-p)}{e^2}}{1 + \left(\frac{z^2 p(1-p)}{e^2 N}\right)}$$

Where: ***n*** *= Sample Size;* ***Z*** *= Z-score of a confidence level of 95%;* ***P*** *= population distribution (50%);* ***N*** *= Population size of the cluster;* ***e*** *= Margin of error (5%).*

Based on the above formula (Equation 4.1) a sample size of 373 households was obtained to which a 10 percent insurance factor (in case of non-responses) was added (IFRC 2014:7) to bring the total planned sample size to 410 households. As the people in Luuq are located in three distinct areas (rural, town and IDP camps) and are bound to be affected by stressors and shocks in different ways, this research separated the population into three mutually exclusive, homogeneous segments (strata), and then a simple random sample was selected from each segment (stratum). The FSNAU (2016:3) also estimated the distribution of Luuq population to be 63.44% Rural, 21.47% Urban and 15.09% in

IDP Camps. As such through proportionate sampling the number of households (HH)/respondents were allocated to the various strata proportional to the representation of the strata in the target population. The sample size of each stratum was derived through the formula below:

Equation 4.2

$$n_h = (Nh / N) * n$$

Where n_h *is the sample size for stratum* h, N_h *is the population size for stratum* h, N *is total population size, and* n *is total sample size.*

Based on the formula above, the Table 4.2 below shows the sample sizes for the different locations.

Table 4-2: Sample sizes of the strata in Luuq district

LOCATION	ESTIMATED HH POPULATION	SAMPLE SIZE	INSURANCE (10%)	TOTAL SAMPLE SIZE
RURAL	7,699	237	23	260
IDP	1,831	56	6	62
TOWN	2,605	80	8	88

In making a choice to use stratified sampling the research also took cognisant of the strengths and weaknesses of the procedure as compared to simple random sampling. The strengths and weaknesses are listed in Table 4.3.

Table 4-3: Strengths and weaknesses of the stratified sampling compared to simple random sampling

STRENGTHS	WEAKNESSES
Presents a greater ability to make inferences within a stratum and comparisons across strata.	Requires more information especially on the proportion of the total population that belongs to each stratum.
The sample is more representative as elements from each stratum are represented in the sample.	Might be time consuming, more expensive, and complicated than simple random sampling.
Permits different research methods and procedures to be used in different strata.	Data analysis may be more complex compared to that collected via simple random sampling.

Adapted from Daniel (2012:140).

Simple random sampling was employed to ensure that all households within a stratum had a chance of being selected. Notwithstanding the stratification, a total of 390 questionnaires were administered and properly responded to by the respondents (The expected total of 410 questionnaires was not achieved due to insecurity or the unavailability of respondents).

4.5.1.3 Quantitative data collection

Before the commencement of interviews and data collection, enumerators were comprehensively trained on village entry procedures, sampling, interview techniques, inclusion and exclusion criteria. Also to ensure quality data collection, questions were standardised and sources of error discussed. Data collection involved the use of eight enumerators and one supervisor who were familiar with the local language and context to make it easier for the data collection. Each stratum was enumerated on different days with all the enumerators focusing on one stratum at a time, and each being allocated a set number of questionnaires to achieve on each day depending on the context and situation. It was faster and easier to get respondents in the IDP areas as compared to the rural areas and the security situation in rural Luuq slowed data collection considerably. High quality data collection was ensured through crosschecking of filled questionnaires and continuous data cleaning to detect errors and taking corrective action in the field.

Quantitative data collection took place from the 22nd of May to the 16th of June

2017. A total of 390 household heads or their representatives were interviewed and the villages surveyed are shown in Table 4.4.

Table 4-4: Strata and villages surveyed

STRATA ONE		STRATA TWO				STRATA THREE	
LUUQ TOWN (n=80)		LUUQ RURAL (n=237)				IDP CAMPS (n=57)	
VILLAGE	NUMBER	VILLAGE	NUMBER	VILLAGE	NUMBER	CAMP	NUMBER
Aakaaro	10	Abow	15	Taleh	14	Dhuya'ley	12
Bederwanay	11	Garsow	14	Halbo	13	Madina	8
Bulamusley	8	Haanoy	16	Dooryanley	15	Busley	10
Hawlwadaag	12	Qasaale	17	Garbalow	13	Barwaaqo	9
Hilac	8	Shantilow	15	Dhegdheg	16	Qansazdhere	10
Horseed	8	Hero	18	Karantile	13	Jazeera	8
Taleex	14	Qurac Libah	15	Maganey	15		
Wadajir	9	Abdikheir	14	Gubadley	14		

Table 4.4 shows the villages and the number of questionnaires that were administered in each cluster.

4.5.1.4 Quantitative data analysis

The collected data was analysed using the IBM SPSS Version 23 package as such all the data was collected and coded in such a way that it was easily inputted into the system. The aim of this process was to model the data to determine whether and to what extent empirical observations could be represented. It is noted that there are other organisations that have undertaken data collection in Luuq district in relation to resilience. These included FAO, UNICEF and WFP and part of their data was used as far as possible to either validate some issues or to feed into some gaps that were realised in the data analysis process.

4.5.2 Qualitative research

As mentioned in the section of the research design, the qualitative methods of research aimed to give a validation of the quantitative results and also elucidate the understanding of research from the perspective of the subjects, who in this case were the households of Luuq district. This method, as explained by Payne

and Payne (2004:175) produces “detailed and non-quantitative accounts of small groups, seeking to interpret the meanings people make of their lives in natural settings, on the assumption that social interactions form an integrated set of relationships best understood by inductive procedures”. The next section describes the study population to which qualitative research was applied.

4.5.2.1 Study population

The study population involved people who were either well versed with the subject of resilience and food security, individuals working with major donor agencies who were familiar with the funding streams from resilience building in Southern Somalia or local leaders both at community and government level. In some instances, businesspeople who appeared to have some knowledge of resilience or the local context were also part of the population for the qualitative study. In the focused group discussions representatives of villages were also consulted in groups of not more than 15 people with one focus group being conducted per village.

4.5.2.2 Sampling

As alluded to, it was not possible to interact with all the subjects in this study and as such a sample of the population was selected to be informers and representatives of the Luuq (Somalia) population. Participants for focus group discussion, participatory mapping participants and key informants were selected through purposive sampling.

The main objective of purposive sampling was to produce a sample that could be logically assumed to be representative of the population. This was accomplished by applying expert knowledge of the population to select in a non-random manner a sample of elements that represented a cross-section of the population. Subjective methods were used to decide which elements to be included in the sample. This method was employed with the knowledge that it a subjective method and in the same location and population a different researcher would likely come up with a different sample using the same selection characteristics. Even with the flaw mentioned and the clear “subjectivity of the selection

mechanism, purposive sampling is generally considered most appropriate for the selection of small samples often from a limited geographic area or from a restricted population definition, when inference to the population is not the highest priority" (Battaglia 2008:646).

4.5.2.3 Qualitative data collection

The purpose of qualitative research is to gain an appreciation of how people's experiences are shaped by their subjective and socio-cultural perspective. For these purposes, it is necessary to use a method of collecting data that permits the participants to express themselves in ways that are not constrained and dictated by the researcher. "Interviews and focus groups have become the most widely used methods of eliciting the viewpoint of participants for qualitative analysis. The accounts and arguments elicited by these methods have the potential to provide unexpected insights into factors which may not previously have been considered relevant, valuable details of the personal and social context which impact upon the meaning attributed to experiences, and an understanding of how the socio-cultural resource of language itself contributes to meaning-making" (Marks & Yardley 2011:39).

In conducting qualitative research, data analysis occurred at the same time as data collection. The moderator and observers looked for patterns while respondents were speaking, and the evolving discussions focused on confirmation and exposition of those patterns. During interviews, probing with validation questions were used to generate evidence for generalisations and hunches about resilience building attitudes and practices. Thus, analysis was a continuous and evolving process rather than one which took place entirely at the conclusion of data collection (Mariampolski 2001:245).

4.5.2.3.1 Methods of data collection

Qualitative data collection was conducted through participatory methods, which involved four techniques. The four techniques employed were:

1. Listening and observation,

2. Visual tools,
3. Semi-structured interviews,
4. Focus group discussions.

Table 4.5 gives the number of participants for two of the qualitative data collection methods that involved participants.

Table 4-5: Qualitative data collection tools

DATA COLLECTION METHOD	NUMBER OF PARTICIPANTS
Semi-structured interviews	12
Focused Group Discussions	10 Groups (109 people)

A summary of how each method was used is explained below. A 'purposive sampling' approach was taken when selecting participants for the research with the aim of seeking samples of participants who will advance the goals of the research and assist the research question to be answered.

According to Desai and Potter (2006:118) "participatory methods have their origins in development activism: NGOs and social movements". The most important influences came from the Third World community development movement of the 1950s and 1960s, western social work and community radicalism (Coghlan & Brydon-Miller 2014:590). The introduction of the concept into the agenda of development agencies was a slow and complex process involving political and intellectual networks (Greenwood & Levin 2007:199). The use of participatory methods in research is based on the understanding that "development research entails a confrontation between the powerful and the powerless, a relationship fraught with possibilities of misunderstanding and exploitation" (Desai & Potter 2006:190). The aim is to give a "voice to those groups in society who are most vulnerable and marginalised in development decision-making and implementation" and at its heart is the validation of the knowledge and intelligence of ordinary people (Laws, Harper & Marcus 2003:49). While there are many proponents for participatory methods there are also some concerns from some scholars on the use of participation to further a certain agenda. These issues are described by Cooke and Kothari (2001:21), who see

participation as a ‘new tyranny’, as vulnerable people are coerced into activities and decisions for which they are unprepared, which almost always overburden them in the name of empowerment. Participation is thus used as a development strategy, which effectively furthers structures of oppression (Desai & Potter 2006:190). For many, development and humanitarian actors’ participatory appraisal tools are viewed as a ‘bottom up’ approach, whereby local people are viewed as experts, and priority is given to their views and perceptions. The key tenets are participation, flexibility, triangulation, and mutual learning between researcher and community.

4.5.2.3.1.1 Listening and observation

According to McKechnie (2008:598) “participant observation is a method of data collection in which the researcher takes part in everyday activities related to an area of social life in order to study an aspect of that life through the observation of events in their natural contexts. Participant observation is regarded as being especially appropriate for studying social phenomena about which little is known and where the behaviour of interest is not readily available to public view”. Participant observation was used as a tool to gain more understanding and appreciation of the villages and the relationships of the people who live in them. Engaging participants in activities that communicated opinions and perceptions, to identify key capacities and vulnerabilities of their locations, was part of the strategy used for data collection and analysis. Conclusions reached using other tools were triangulated with participant observation.

4.5.2.3.1.1.1 Visual tools

To gain an overview of each village, the researcher used four participatory tools to collect spatial, social and political data, namely transect walks, timelines and historical, each of which is explained below.

a. Transect walk: A transect walk with village residents allowed the researcher to observe a slice of each ‘zone’ or area of the village to get a feel of the physical environment and the social relationships within. One transect walk was done per village and was led by local residents.

b. Historical profile: A historical profile was used to track changes in the social, political, economic and physical context to shed light on causal links between the changes. Historical tracing asks individuals or groups to begin with current experiences and to go back in time. One historical profile was done for each village and was led by residents.

c. Timeline: Timelines were drawn to depict events that occurred in the 2016 drought. Participants drew a line on paper and indicated with words and pictures, the events that occurred during a specific time frame. One timeline was done for each village with eight people participating overall.

4.5.2.3.1.2 Semi - structured interviews

This process involved twelve key informant interviews (KIIs) with donor representatives in Nairobi and inside Somalia. In Nairobi fifteen letters were sent to the donor offices soliciting for an appointment. Six offices accepted and appointments were made. In Somalia the six interviews with the key informants were conducted at the same time with the Focus Group Discussions (FGDs) while six interviews with donor representatives were conducted in Nairobi. In total twelve key informant interviews were conducted. The key informants were people who had an opinion or perception of the case under study and could provide valuable information about the construction of their social reality. Inside Somalia the key informants were drawn from businesspeople, the government, NGO representatives and key people from the villages. The key informants were either taken aside and asked questions or were visited in their offices in the cases of senior government officials. There were some unstructured interviews that were also conducted, where open-ended questions were asked so that the issues raised by the interviewees could be followed up. In the unstructured interviews the topics were broad and covered topics that included the history of the area and development processes.

4.5.2.3.1.3 Focus group discussions

According to Desai and Potter (2006:154) focus group discussions are seen “as a means of generating information on public perceptions and viewpoints and are

an excellent tool for exploring group behaviours, interactions and norms, and they are now widely used as part of a multi-method approach to development field research". While focus groups have their origins in the 1950s, the techniques are now widely used in the public sector and by political parties as a method of assessing public opinion. These groups were normally comprised of between eight and fifteen people. The group members were chosen because they have similar education, social status, occupation and income. The discussion provided an occasion for people to engage in 'retrospective introspection', that is to explore taken-for-granted assumptions in everyday lives (Desai & Potter 2006:155; Payne & Payne 2004:103). In total, ten FGDs took place; one in each of the below mentioned villages as shown in Table 4.6.

Table 4-6: Sites for Focus Group Discussions

LOCATION	NUMBER OF PARTICIPANTS
Jazeera IDP Camp	13
Dooryanley Village	12
Barwaaqo IDP Camp	8
Horseed Village	14
Abow Village	10
Shatilow Village	9
Haanoy Village	9
Hawlwadaag	15
Wadajir	11
Taleex	8

A second set of five FGDs was conducted in the IDP villages to validate the findings. It was difficult to conduct the validation exercise in the rural part of Luuq due to the deterioration of the security situation at the time of validation.

4.5.2.4 Qualitative data analysis

The data collected using qualitative methods was analysed through two approaches. The first method used was the morphological analysis and secondly the NVivo software was employed in the analysis of the transcripts from the interviews. Firstly, the data was coded into themes and then developing themes by grouping similar codes together and then assertions were developed based

on the themes. Next the themes were then presented in accordance with the research questions. The morphological analysis assists with understanding the inter-relationships between social, economic, historical, cultural, political and spatial aspects of a city. A range of documents were reviewed and analysed to construct an understanding of the historical context of Luuq. This included government documentation, project reports, rapid assessments and programme evaluations from aid agencies that were also analysed in order to understand resilience-building initiatives prior to the 2016 drought.

The second method of analysis used was coding using NVivo software, which facilitates in-depth qualitative data analysis. Categories for analysis were developed based on the conceptual framework. Data collected was coded into seven themes on the basis of the research questions and queries were run through the software to allow for analysis. Analysis of key informant interviews, and FGDs was through the NVivo software. The transcripts of the interviews and FGD reports were translated from the local language and rearranged to allow for auto coding into NVivo and ensure faster data analysis.

4.5.2.5 Methods for validation

The findings of this research were tested at two levels, the first being through respondent validation, in a process where a researcher provided respondents with an account of the findings and then seeking to corroborate them. One FGD was held in each village to ascertain the validity of each set of the findings. Eight to fifteen men and women from each village attended each meeting. Once validated, the findings in each village were merged into a final list that was tested against the conceptual framework seeking to answer: are these findings representative of the theories and categories developed in the conceptual framework. This final check was of internal validity, which sought to match the researcher's observations with the theoretical ideas they develop. The conceptual framework was then adjusted based upon the evidence in the case studies.

4.6 ISSUES RELATING TO DATA QUALITY

To meet the criteria of reliability, the findings must be shown to be independent of the circumstances of the research. That is, the researcher must show that the research process would yield the same result if it were repeated. In order to claim validity, the researcher must show that the research process has accurately represented a phenomenon, which is recognisable to the scientific community being addressed (Lepper 2011:173). The quantitative sciences rely on statistical tests to validate research findings and claim 'objectivity'. In some traditions of qualitative social science research, however, issues of validity and reliability have been treated as irrelevant to the task of interpreting social data, which is seen as essentially 'subjective' in nature. This research undertook to maintain high levels of data quality in both the qualitative and quantitative processes.

4.6.1 Reliability

So as to maintain consistency and replicability, the same questions and questionnaires were administered to all the respondents and selected subjects. While the checklist for the qualitative processes were in English, trained research team leaders administered them in the local language. The same procedure was adopted for the household questionnaire, which again was administered in the local language to ensure that there was no ambiguity in the questions asked. All the enumerators were trained on the interpretation of all the questions in the questionnaire.

4.6.2 Validity

According to Vogt (2005:335) validity describes "a measurement instrument or test that accurately measures what it is supposed to measure; the extent to which a measure is free of systematic error". Validity also refers to designs that help researchers gather data appropriate for answering their questions. Validity requires reliability, but the reverse is not true. The basis of research is to believe its results, which implies that they should be rational grounds for arguing that the accounts produced accurately reflect the nature of what was studied, and It is

particularly important to substantiate the research instruments that have been applied (Payne & Payne 2004:234). As means of ensuring the validity of the question, the research tools were pre-tested in May 2017 in each location on 41 respondents (ten per cent of the sample size). As has been alluded to in Chapter 3 that resilience means different things to different people it was important to get a common understanding and definition and also have the term in the local language. This was one of the activities of the pre-test portion of the data collection exercise with the focus groups. The local words agreed on were two from an initial shortlist of eight. When asked to specify the Somali word for various concepts, the respondents considered 'shock' 'coping', and 'resilience' as common elements provided by humanitarian aid even though they could not conceptualise the terms. The FGD participants showed more inclination towards 'coping', as a concept and they indicated that they generally associated the term with long terms and concrete activities. As the predominant language in the study area is the Darood Group dialect, the local words that were agreed upon were "shock = *Argagax or Naxadin*"; coping = *maamulid*, *maarayn*, *laqabsasho* or *Barbah* and finally "resilience = *adkaysi* or *kabsasho*. This study thus adopted both *adkaysi* and *kabsaso* as the closest fit for the definition of resilience.

The data collection supervisors conducted the pre-tests and provided feedback on the design of the instruments. The major issue was the length of the quantitative questionnaire followed by some ambiguities on the qualitative data collection guides. The research instruments were thus adjusted accordingly. To ensure both validity and reliability, the research instruments were designed through the following steps:

- The extensive analysis of literature on resilience, food security and the effect of droughts in Somalia, which placed emphasis on the critical elements, that needed to be investigated in order to meet the objectives of this research.
- The mixed research method provided greater confidence in the findings by inflating the strengths of the different methods.

- The research instruments pre-testing ensured that all the research questions were covered in terms of detail and content.
- The design of the questions and questionnaires were clear and concise so as to increase the data collection process and to improve clarity of the questions.
- No personal data was collected concerning the respondents thus encouraging freedom of expression from the participants.

4.7 ETHICAL CONSIDERATION

As this study involved interaction with people some ethical considerations were observed in the collection of data from the communities. While previously (Desai & Potter 2006:26) people used to be referred to as objects or subjects of research, the emphasis of this study was on collaboration, facilitation and participation. The people were not only involved in the 'data collection' phase of the research, but also in formulating the key questions as well as in the validation of the findings. This study was guided by ethical considerations as outlined by Sullivan and Riley (2012:52) which are doing genuine and competent research, getting an informed consent, confidentiality, anonymity and debriefing, and giving participants a right to withdraw. In the following paragraphs, more details on the above are given.

Genuine and Competent Research

The study was conducted honestly, truthfully and competently. The reporting of the results reflects the actual findings on the ground.

Informed Consent

All participants were given sufficient information about the study so that they could make informed choices and decisions to participation. Each participant was informed of the expectations and the fate of the information collected explained. All this information was communicated in the local language.

Confidentiality

It was explained to participants that the information collected from them was not going to be shared or stored in a way that allowed them to be identified. Pseudonyms were used and all identifying information was not reflected.

Right to Withdraw

All participants retained the right to withdraw from any part of the research process. This right was communicated to them before they gave their consent. As a means of ensuring that the participants owned the results, a validation session was conducted to confirm the results of the study. In the context of Somalia, which is predominantly Islamic, the study did not conduct sessions on Fridays as the day is set aside for prayer and all enumerators and study leads ensured appropriate and modest dressing for the entire duration of the study.

4.8 CONCLUSION

This chapter explained the methodological approach that was used to achieve the overall aim of developing a measurement framework for understanding resilience to food insecurity. By outlining a research strategy, this chapter aimed to answer the question, 'What is an appropriate method for measuring household resilience to food insecurity?'

The chapter began by explaining that this research was inductive because it collected data in order to extract patterns and meanings. It also explained that it is interpretivist, believing that reality is subjective because it is made and explained by the subjects. The chapter went further to explore the research design as a logical structure of inquiry that systematically achieves the research objectives through the collection of evidence based on the research question. It highlighted the need for primary and secondary data to be collected through PRA, semi-structured interviews with key informants, FGDs, and participant observations.

The chapter then explained that an analytical tool was developed to compliment the conceptual framework. The chapter further discussed the process of validating its findings. Validity was tested at two levels; first at the village level through a focus group discussion in five villages to test the findings and second,

on the generalisability of the conceptual framework and analytical tool.

The next chapter focuses on the presentation of the results that were collected using the methods that have been explained. The chapter presents the results following the research frameworks and provides a scientific analysis of the quantitative results and the same time seeking to explain some of the results from the backing of the qualitative approach.

CHAPTER 5 : PRESENTATION OF RESULTS

5.1 INTRODUCTION

Chapter 5 is a presentation of the results that were obtained from the methodology described in Chapter Four and links these results to what has been described in literature including what has been obtained in measuring resilience using other methods and the impact these methods have in obtaining a more accurate and acceptable measure of resilience especially in a fragile state context. The chapter discusses the perception of the respondents drawn from community members and the donor community on the concept of resilience, the projects and programmes that have been implemented in Somalia, and how they have contributed to building resilience and the methods that have been employed to measure the same including their flaws and successes. The chapter also presents results from the subjective measure of resilience and demonstrates how subjective measures can be used as more reliable measure of resilience especially in fragile and insecure contexts.

The purpose for this study was to contribute to building an understanding of the concept of resilience with reference to food insecurity and in the setting of a fragile or failed state. It also sought to address some limits and concerns in literature pertaining to the measurement of resilience and finally proposes an empirical method of measuring resilience using food security as a case study in the context of Somalia. The basic research question was to measure how valid the resilience-building concept was in the development sector and in the context of resilience to food security in Somalia. While not negating the research questions the presentation of results follows a sequence that covers the following points:

- Are results systematically different between locations of households, that is Luuq Rural, Luuq IDPs (in camps) and Luuq Town populations?
- What has been the understanding of resilience among the donor community including the attempts to measure in a fragile context such as

Somalia?

- What could be improved and proposed as one of the effective measures of resilience in the context of Somalia?

As this was a mixed method approach the presentation of the results combines both the quantitative and qualitative methodologies in the same discussion to ensure a common understanding of the results from both methodologies. The quantitative results are drawn from the SPSS analysis while the qualitative data is presented from the NVivo analysis where possible. The qualitative results are used for triangulation purposes to further explain the phenomenon that is not adequately captured by the quantitative analysis. The results are presented to account for the research questions including the above broad questions.

The chapter is composed of four sections with the first section focusing on profiling the population of Luuq through demographic data. The first section also focuses on livelihoods, incomes, shocks and coping strategies that are experienced by the people of Luuq to position how these relate to the building of resilience to food insecurity. The second section presents results of the relationship between resilience to food insecurity and demographic characteristics. The third section of the chapter presents the results in accordance with the research questions as discussed in Chapter One. The fourth and last section concludes with the description of resilience with relations to the subjective responses to the 'resilience' questions and tests the consistency of these questions in measuring resilience in the context of Somalia.

5.2 DEMOGRAPHICS OF THE STUDY POPULATION

The following section describes the general features of the population under study. These features are presented to gain an understanding of some of the underlying features of this population that may influence the results so obtained.

5.2.1 Profile of the study population

This section describes the study population by looking at the profiles of the respondents. The section presents a summary of the socio-economic characteristics of the respondents who were interviewed in this survey. These

characteristics include age, gender, marital status, education level, occupation, income levels and expenditure patterns among others. Resilience is a function of the characteristics of risk or a shock and the ability of a household to respond to shocks, resilience also reflects relational considerations that is: between women and men, the old and the young, people of different abilities, and between different social or ethnic groups, and locations.

The study area was divided into three areas namely; Luuq Rural, Town and IDP Camps. This was because of the unique settlements in Luuq District, which have different characteristics. The researcher believes that to get more insight out of the results, it was critical that the analysis be split according to the locations of the respondents, as they were likely to be issues that affected the different populations differently. Table 5.1 shows the demographic composition of the sampled population in Luuq.

Table 5-1: The demographic composition of Luuq

CHARACTERISTICS		LOCATION					
		RURAL [n=254]		IDP CAMP [n=56]		TOWN [n=80]	
		F	%	F	%	f	%
Gender	Male	182	71.7	30	53.6	45	56.3
	Female	72	28.3	26	46.4	35	46.4
Age	20 or less	3	1.2	1	1.8	1	1.3
	21 - 30	68	26.8	17	30.4	7	8.8
	31 - 40	119	46.9	34	60.7	57	71.3
	41 -50	50	19.7	4	7.1	13	16.3
	51 -60	13	5.1	0	0	2	6
	>60	1	0.4	0	0	0	0
	MEAN	35.6		32.7		36.4	
Marital Status	Married	233	91.7	50	89.3	76	95
	Single	7	2.8	2	3.6	0	0
	Divorced	9	3.5	3	5.4	4	5
	Widowed	3	1.2	1	1.8	0	0
	Separated	2	0.8	0	0	0	0
Education	None	27	10.6	4	7.1	0	0
	Madrassa	102	40.2	35	62.5	48	60
	Primary	110	43.3	17	30.4	32	40
	Secondary	9	3.5	0	0	0	0
	College	3	1.2	0	0	0	0
	University	2	0.8	0	0	0	0
	Post University	1	0.4	0	0	0	0
Dependents	None	17	6.7	1	1.8	5	6.3
	1 – 3	64	25.2	7	12.5	18	22.5
	4 – 6	81	31.9	27	48.2	18	22.5
	7 - 10	65	25.6	18	32.1	29	36.3
	>10	27	10.6	3	5.4	10	12.5
	MEAN	5		6		6	

In general, the gender of the head of household has a profound effect on the food security of the household as in the Somali context the men are responsible for ensuring the economic prosperity of the household. The results in Table 5.1 indicate that across the three locations the majority of the head of households were male, with the highest in Rural at 71.7 percent. The dominance of male headed households advances the assertion in literature (World Bank 2015:26) even though the FGDs indicated that while they remain the heads of the households, the women had now taken the main role in domestic decision-making and working in whatever way they could to provide an income for their families, even where men were present in the household. It was evident in the FGDs that overall; men gender roles had tended to contract since the outbreak of the war along with their responsibility for the family upkeep while they remained in control of the political domain. One FGD participant mentioned: "*When war breaks out, men move away to fight and women take over the decision-making in the households. Very few women are however elected into political or leadership positions" (FGD participant, Hawlwadaag Village, Luuq Town).*

The results of the education level were varied across the locations with a somewhat similar trend. A huge proportion of the respondents fell between a Madrassa and primary school education level. The progress beyond primary school was very low indicating a very low education level for the Somali population. These results agree with Moyi (2012:170), who stated that 'the Koranic schools are the largest providers of education in Somalia, yet they lack qualified teachers, lack physical facilities, and totally rely on the community for financial support'. The Madrassa had the highest percentage of 62.5 and 60 in the IDP camps and Town respectively.

The age composition of the head of households from the sample was dominated by individuals between the ages of 21 and 40 years. These composed 73.7 percent, 91.1 percent and 80.1 percent for Rural, IDP camps and Town respectively. The mean age of the head of household was almost similar for the rural and town locations at 36 years while that of the IDP camps was lower at 32 years. One FGD participant mentioned: *"In our culture a woman should be*

married and it is expected that by the time she reaches the age of 30 she is not only married but also should have borne children for her husband", (FGD participant, Wadajir, Luuq Town, 2017). In general, the population of Somalia as estimated by the UNFPA (2014:46) is that the mean ages of the Rural, IDP and Town populations are 21, 20 and 18 years respectively.

The marital status of the head of the household was used as one aspect of determining the demographic characteristics of sampled households. The marital condition of households influences the income, the livelihood and consequently the resilience capacity of that household. In this research, the marital status of the sampled households is presented in Table 5.1. In the study area the married household heads constituted the dominant proportion compared to all the other statuses. In all locations the percentage of married head of households was above 89 percent.

The number of dependents per household was widely spread in all locations stretching from one to ten members in each household. Household size is a well-known predictor of food security in the household, which implies that bigger family sizes will need to put more effort to build resilience to food insecurity as compared to smaller sized families. In all the locations the mean household size was five members in the Rural areas and six members for both the IDP camps and the Town, which compared well with the national average size of six as estimated by the UNFPA (2014:50).

5.2.2 Livelihoods, incomes, shocks and coping strategies

This section lays the foundation for latter discussions on resilience and resilience capacities by providing an overall profile of program households related to their livelihoods systems, incomes and coping strategies in the face of shocks. As previously explained, the result analysis is rooted on the different locations of the beneficiaries as these have a profound effect on the structuring and understanding of resilience and resilience building initiatives. The Table 5.2 summarises the livelihoods, incomes, shocks and coping strategies of the study population by their respective locations.

Table 5-2: Livelihoods, income, shocks and coping strategies

CHARACTERISTICS		LOCATION					
		RURAL [n=254]		IDP CAMP [n=56]		TOWN [n=80]	
		f	%	F	%	f	%
Livelihood system	Pastoral	92	36.2	1	1.8	8	10
	Agropastoral	97	38.2	0	0	21	26.3
	Petty trade	36	14.2	2	3.6	41	51.2
	Casual labour	20	7.9	51	91.1	8	10
	Employment	1	0.4	0	0	0	0
	Riverine agriculture	1	0.4	0	0	0	0
	Irrigated agriculture	5	2	2	3.6	2	2.5
	Fishing	2	0.8	0	0	0	0
Major use of income	Food and water	143	56.3	40	71.4	64	80
	Medical expenses	23	9.1	6	10.7	4	5
	Clothing	21	8.3	5	8.9	5	6.3
	Veterinary supplies	12	4.7	2	3.6	5	6.3
	School fees	52	20.5	1	1.8	2	2.5
	Social assistance	3	1.2	2	3.6	0	0
Impact of shocks	Loss of livestock	127	50	1	1.8	23	28.7
	Reduced daily income	85	33.5	54	96.4	53	66.3
	Reduced farm production	34	13.4	0	0	3	3.8
	Other	8	3.1	1	1.8	1	1.3
Coping strategies	Reduce food consumption	83	32.7	19	33.9	25	31.3
	Take up wage employment	45	17.7	15	26.8	12	15
	Migrate livestock	22	8.7	1	1.8	13	16.3
	Sell livestock	21	8.3	0	0	6	7.5
	Borrow food	14	5.5	0	0	6	7.5
	Purchase food on credit	16	6.3	1	1.8	5	6.3
	Migrate household members	16	6.3	3	5.4	2	2.5
	Entire household migration	9	3.5	3	5.4	6	7.5
	Other	28	11	14	25	5	6.3

Table 5.2 shows the top livelihood activities reported by households as sources of their food or income over the last 12 months. The results show that the town residents had petty trade as their major source (51 percent) of livelihoods partly due to the high number of people that demand this service implying therefore that a market existed. The rural folks were dependent mainly on agriculture related activities (74 percent) when both pastoral and agro-pastoral livelihoods were combined. This is not surprising as livestock are typically the symbol of wealth in the Somali context, though of late there has been an increase on the contribution of crop production to the livelihoods basket of the rural folk (World Bank 2018:92). In the FGDs, the IDP camp respondents cited lack of integration as one of the issues that limited their livelihood options; it is thus not surprising that their major livelihood activity was casual labour (91 percent). A member of an

FGD remarked: "*We are treated as outsiders and not considered in most town activities and decisions. The administrators maintain that we own property elsewhere even though we can no longer go back and have been living here for years" (FGD participant, Barwaaqo IDP Camp, 2017).* The participation of this group was very low in other options that were available such as petty trade and agriculture mainly due to the limitations that were posed by land tenure and integration challenges into the urban society where they had found refuge. The town folk however had access to land, which made them participants in the agricultural activities around the urban areas.

Both the Town and IDP camp residents spent their income in a similar way, as they all depended on food purchases from the markets. The Rural residents while they spent significantly on food and water (56.1 percent) they spent almost 21 percent on school fees. The expenditure on school fees was significant for the rural folk, as they had to send their children away from their point of residence to the schools that were in the urban centres. In all the locations the market functionality played a very important role as a source of otherwise unavailable food items that are staple and non-staple representing a major portion of household expenditure across all income groups.

With food insecurity or drought being one of the most prominent shocks facing all the locations, this section describes the various coping strategies employed by households to deal with the shock. The coping strategies were either negative or positive depending on the context and at what point of exposure they were utilized. Table 5.2 shows the top four coping strategies utilised by households exposed to food insecurity/drought and/or late or variable rainfall. All the households indicated that the reduction of food consumption was their first line of coping followed by taking up wage labour to supplement their income. Besides migrating livestock in search of pasture, the rural residents also reported selling livestock, borrowing food from relatives or friends and purchasing food on credit. All the households (Rural, Town and IDP camps) also indicated that they migrated to greener pastures (10 percent, 11 percent and 10 percent respectively) in instances of prolonged droughts. Generally, wealthier households

are more likely to use their wealth to cope, and conversely can avoid strategies with more negative short-term or even long-term consequences. The coping strategy of taking up new wage labour presented above (Table 5.2) was explained through FGDs in all the areas as the larger farms were offering daily labour jobs to households affected by a disaster. One FGD participant contributed by saying: "*Our coping mechanisms have included moving to irrigated farms along the river Luuq to find casual employment to earn some income for our families" (FGD participant, Abow Village, Luuq Rural, 2017).* Communities across the study areas reported making collective contributions to a fund organised by community leaders to assist the most affected or vulnerable households.

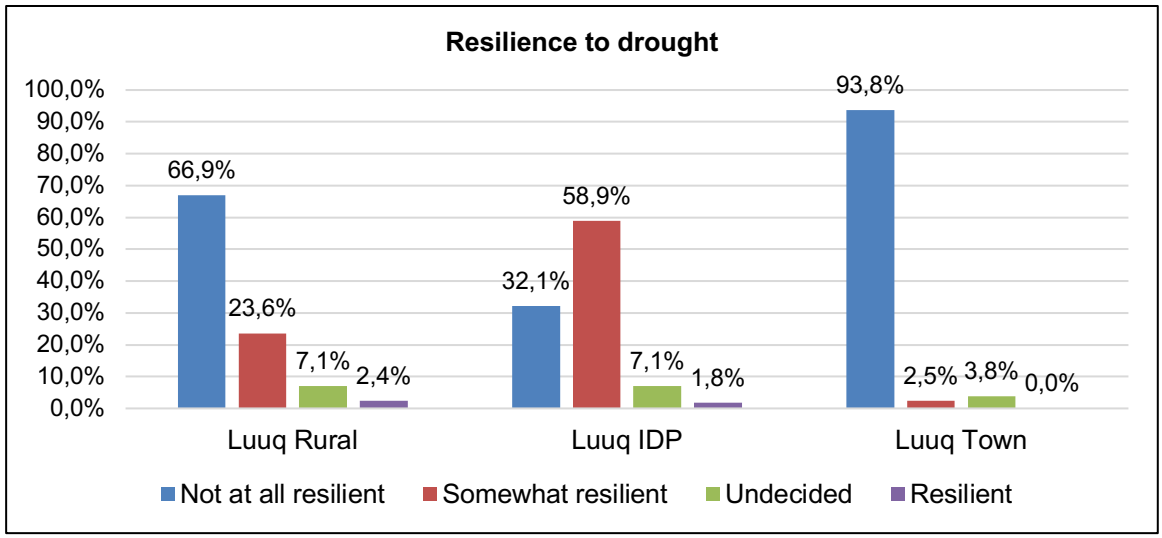
5.3 RESILIENCE AND DEMOGRAPHIC ATTRIBUTES

As mentioned in literature, resilience relates to the social elements in society that allow change to happen without endangering the essential functions of a socio-ecological system. Recently, more and more studies are being conducted where the social resilience of socio-ecological systems is investigated in relation to demographic challenges. The section introduces the interaction of the perceived resilience to food insecurity with the demographic challenges. These results are presented through a Chi-Square analysis. The Chi-Square test was intended to test how likely it was that an observed distribution was due to chance because it measures how well the observed distribution of data fits with the distribution that is expected if the variables are independent. This section begins with measures of association based on the Chi-Square statistic. A cross-classification table was used to obtain the expected number of cases under the assumption of a Null Hypothesis that the results from the different locations were homogeneous. Then the Measures of Association value of the Chi-Square statistic provided a test to determine whether there was a statistically significant relationship between the variables in the cross-classification table. Where a significant value of homogeneity was established the Cramer's V statistic was used as a post-test to determine the strength of the association.

5.3.1 Resilience and location of the household

The next section analyses the triple relationship between gender, location and resilience to food insecurity. The overall agreement was that food insecurity or drought was a universal phenomenon it was highly likely that almost all the households had experienced the impact and the effect of the drought of the agriculture season 2016/2017 and the subsequent food insecurity and had also lived through a severe food insecurity occurrence in the three years before the research despite their location. Figure 5.1 presents the analysis of the resilience relative to location of the household.

Figure 5-1: Location of household and resilience cross tabulation.



The results on the figure above indicate that in general despite the location very few households felt that they were resilient in the face of food insecurity. Across the locations 67.4 percent of the respondents felt that they were not resilient at all, with a greater proportion of those resident in Town having the highest percentage of not being resilient at 96.3 percent. The Chi-Square test results are shown on Table 5.3 below.

Table 5-3: Chi-Square test of location of household versus resilience

Variable	Degrees of freedom	Chi-Square Value	P-Value
Household location versus resilience	6	64.793	0,000

The result on Table 5.3 above indicates that there was strong evidence of a relationship between the location of the household and the resilience to food insecurity *(Chi-Square = 64.793, df = 6, p <0.005)*. These results suggest that the relationship between location and resilience to food insecurity was highly significant. The results above show that while it is believed that food insecurity affects everyone in Somalia as indicated by the FGDs, the households in different locations experience different impacts of the food insecurity and hence had differing levels of resilience to food insecurity. A member of an FGD mentioned: "*Us the IDPs are the most affected by drought and food insecurity as we do not have access to resources such as the river, irrigated farms and other assets" (FGD participant, Jazeera IDP Camp, 2017).*

5.3.2 Resilience and age of the head of household

The next section looks at how the resilience of a household can be influenced by the age of the head of household. It has been alluded to, in literature that the age of the head of household influences protective factors that predict resilience. This is because age can determine not only the associative component of the household but also the availability of labour which both affect the perception of resilience a household might have. Table 5.4 below is a frequency cross tabulation of the age of the head of household and the perceived resilience of that household.

Table 5-4: Resilience, location of HH & age of head of HH cross tabulation

Age of head of household			Location of household			Total
			Luuq Rural	Luuq IDP	Luuq Town	
20 or less	Resilience to drought	Not at all resilient	66.7%	0.0%	100.0%	60.0%
		Somewhat resilient	0.0%	100.0%	0.0%	20.0%
		Undecided	33.3%	0.0%	0.0%	20.0%
	Total		60.0%	20.0%	20.0%	100.0%
21 - 30	Resilience to drought	Not at all resilient	41.2%	41.2%	85.7%	44.6%
		Somewhat resilient	38.2%	47.1%	0.0%	37.0%
		Undecided	16.2%	11.8%	14.3%	15.2%
		Resilient	4.4%	0.0%	0.0%	3.3%
	Total		73.9%	18.5%	7.6%	100.0%
31 - 40	Resilience to drought	Not at all resilient	68.1%	29.4%	96.5%	69.5%
		Somewhat resilient	25.2%	64.7%	1.8%	25.2%
		Undecided	4.2%	5.9%	1.8%	3.8%
		Resilient	2,5%	0.0%	0.0%	1.4%
	Total		56.7%	16.2%	27.1%	100.0%
41 - 50	Resilience to drought	Not at all resilient	92.0%	25.0%	92.3%	88.1%
		Somewhat resilient	8.0%	50.0%	7.7%	10.4%
		Resilient	0.0%	25.0%	0.0%	1.5%
	Total		74.6%	6.0%	19.4%	100.0%
>51	Resilience to drought	Not at all resilient	92.9%	0.0%	50.0%	87.5%
		Undecided	7.1%	0.0%	50.0%	12.5%
	Total		87.5%	0.0%	12.5%	100.0%
Total	Resilience to drought	Not at all resilient	66.9%	32.1%	93.8%	67.4%
		Somewhat resilient	23.6%	58.9%	2.5%	24.4%
		Undecided	7.1%	7.1%	3.8%	6.4%
		Resilient	2.4%	1.8%	0.0%	1.8%
	Total		65.1%	14.4%	20.5%	100.0%

Table 5.4 provides a cross tabulation of an ordinal variable “Resilience to drought”, with an ordinal variable “Location of household” and with another ordinal variable “Age of head of household”. The variable “Age of head of Household” was measured with the survey question “How old was the head of household at the last birthday?” The results show that while 67.1 per cent of the study population was “Not resilient at all” the age category with the highest percentage (21 percent) indicating this was those in the 31 to 40 years’ age group. A key informant mentioned: *“Most people in the youthful age (31-40 years) find it difficult to be resilient because they have younger families and more people to take care of in their households”, (Key informant interview, Hawlwadaag, Luuq Town, 2017).* The Chi-Square analysis of resilience and age of head of household is presented below on Table 5.5.

Table 5-5: Resilience and age of head of HH Chi-Square test

Variable	Degrees of freedom	Chi-Square Value	P-Value
20 years or less	4	5.556	0,235
21 – 30 years	6	7.202	0,303
31 – 40 years	6	50.665	0,000
41 – 50 years	4	24.042	0,000
51 – 60 years	1	2.939	0,086
Total	6	64.793	0,000

The Table 5.5 shows that there was strong evidence of a relationship between the age of the head of household and resilience *(Chi-Square = 64.793, df = 6, p = < 0.005)*. The distribution was variable among the ages signifying that there was a partial association between age and resilience. The results above show that the age of the head of household had an impact on the perception of resilience of that household.

5.3.3 Resilience and gender of the head of household

The literature review has indicated that there is some relationship between resilience and gender especially with relation to food insecurity. While this relationship is not clearly marked, the literature in Chapter 3, Section 9 shows that there is some gender bias when it comes to resilience issues with most of the female head of households reporting that they do not feel as resilient as their male counterparts. Table 5.6 shows the cross tabulation of the resilience to drought and the gender perspective of the respondent. The different subsets from the analysis reveal that while food insecurity was a universal issue across locations and across gender, there was a relationship between the resilience to food insecurity and gender. While the differences will be tackled in the next chapter it must be noted that they agree with the literature as argued in Chapter 3, Section 9 (Kawarazuka et al 2017:203; Bollettino et al 2017:21) that the differences in the perception are a result of the fundamental issues that have to do with access to assets in the Somalia context.

Table 5-6: Resilience and gender of head of HH cross tabulation

Gender of head of household			Location of household			Total
			Luuq Rural	Luuq IDP	Luuq Town	
Male	Resilience to drought	Not at all resilient	64.8%	10.0%	91.1%	63.0%
		Somewhat resilient	25.3%	80.0%	2.2%	27.6%
		Undecided	7.1%	10.0%	6.7%	7.4%
		Resilient	2.7%	0.0%	0.0%	1.9%
	Total		70.8%	11.7%	17.5%	100.0%
Female	Resilience to drought	Not at all resilient	72.2%	57.7%	97.1%	75.9%
		Somewhat resilient	19.4%	34.6%	2.9%	18.0%
		Undecided	6.9%	3.8%	0.0%	4.5%
		Resilient	1.4%	3.8%	0.0%	1.5%
	Total		54.1%	19.5%	26.3%	100.0%
Total	Resilience to drought	Not at all resilient	66.9%	32.1%	93.8%	67.4%
		Somewhat resilient	23.6%	58.9%	2.5%	24.4%
		Undecided	7.1%	7.1%	3.8%	6.4%
		Resilient	2.4%	1.8%	0.0%	1.8%
	Total		65.1%	14.4%	20.5%	100.0%

The Table 5.6 above shows that the relationship between gender and resilience to drought was slightly more pronounced on female-headed households as shown by the higher percentages of “Not at all resilient” compared to male-headed households. The high figures were across the locations and are 72.2 percent in Rural, 57.7 percent in IDP camps and 97.1 percent in Town for females compared to 64.8 percent in Rural, 10 percent in IDP camps and 91.1 percent in Town for males. Given the information above, a Chi-Square test was done to determine the goodness of fit of the data on the interaction of the gender of the head of household and their perceived resilience to food insecurity. The Chi-Square analysis results are shown on Table 5.7 below.

Table 5-7: Resilience and gender of head of HH Chi-Square test

Variable	Degrees of freedom	Value	P - Value
Male	6	62.154	0
Female	6	15.882	0,014
Total	6	64.793	0

There was strong evidence of a relationship between the gender of the head of household and resilience *(Chi-square = 64.793, df = 1, p <0.005)*. The results were the same when the genders were individually analysed giving Likelihood Ratios (since the assumption has been violated) of *0.00* and *0.004* for male and

female-headed households respectively, signifying that there is association across the genders. The FGDs revealed that while both male and female headed households were exhibiting low resilience, it was generally agreed that female headed households fared way less compared to men because of issues of access and the patriarchal challenges on acquiring assets or resources for their households. FGD members agreed: "*Women suffer a lot especially those that do not have husbands, as they do not attend most meetings where issues such as land access and other inputs are discussed" (FGD members, Shantilow Village, Luuq Rural, 2017).* There was however a contrary view in some of the FGDs especially in the IDP Camps and in Town which indicated that women were more resilient to food insecurity as they had access to more diverse sources of livelihoods including saving groups, and these had made them more able to leverage better support from social networks.

5.4 ANALYSIS OF THE RESEARCH QUESTIONS

The next section analyses the data according to the research questions with the aim of answering the fundamental question of how valid resilience building was as a concept in development in the context of resilience to food security in Somalia. The section is organised through answering the secondary research questions and then eventually giving an answer to the primary question.

5.4.1 The difference and similarity between resilience and vulnerability

While it must be noted that this question was dealt with in the literature review, the same question was posed to key informants, as there was no point in asking the ordinary respondents the way they understood these two terms. It was evident among the donors and the implementing NGOs that the differences were not clear when they attempted to define these two terms. This is supported by the literature review (Chapter 3 section 7: Gallopin 2006:300; Bergstrand et al 2015:393) indicating that the difference between the two terms is blurred and has been distorted to fit the desires of those who define it. The other more scientific humanitarian players such as IGAD had a more refined distinction between the two terms which is in line with other scholars (Scott 2013:604; Reghezza-zilt et al

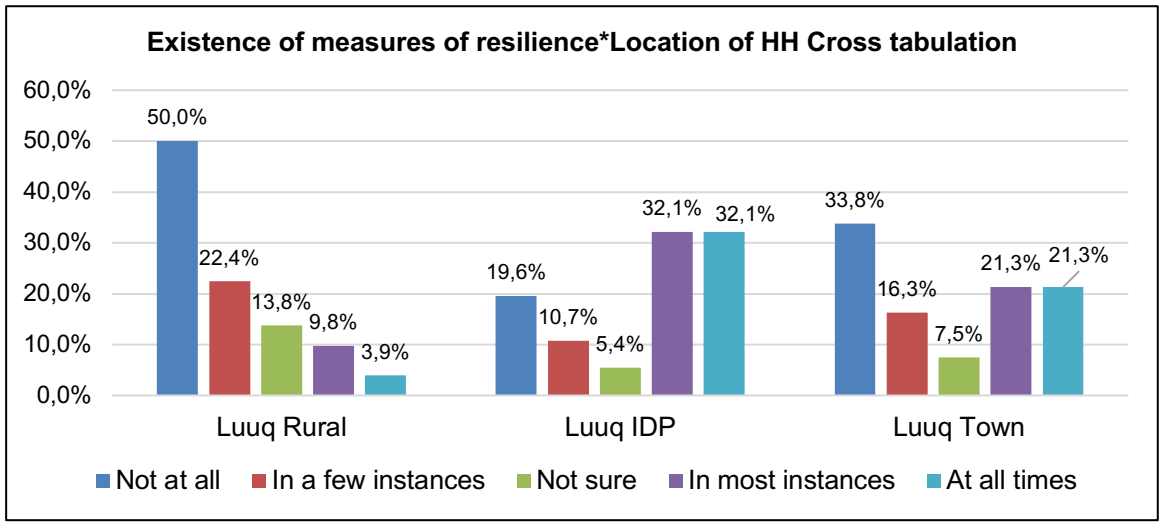
2012:10) indicating that for those who have pursued resilience and humanitarianism from a scientific point of view have tended to have a more accurate definition and separation of the two terms. The result however indicated that despite the blurring that is evident from the sectors the two terms are different and should be applied differently. From these results it can be fairly concluded that resilience is a far broader term than vulnerability and describes not only the inherent qualities of households or systems but goes deeper to dynamics of social systems such as adaptability and transformability. Vulnerability on the other hand is limited to defining the state of exposure, sensitivity and adaptive capacity at a time. This reasoning in the definition of the two terms is also supported in Chapter 3, Section 7 and by scholars who have agree and sum up the two terms as describing two ends of a spectrum or rather the continuum.

5.4.2 The previous attempts to measure resilience in Somalia

The feedback from the KII showed that the major donors that were implementing resilience building activities in Somalia were mainly the UN organisations (FAO, WFP and UNICEF), the Building Resilient Communities in Somalia (BRICs) Consortium (funded by DFID and DEVCO) and the Somalia Resilience Program (SomReP) Consortium (funded by EU, SDC, USAID, SIDA, DFAT, DEC and DANIDA). The UN agencies have used the RIMA method to measure resilience to food insecurity as has been described in literature in Chapter 3 section 12. The method was used to evaluate the FAO Somalia Resilience Sub-programme in 2015. The key informants indicated that from 2016, FAO started a process of developing a RIMA Phase two known as RIMA II as a way of improving on the shortfalls of RIMA and increase the accuracy of the measures of resilience. RIMA II was developed through combining two proxy measures, direct (Resilience Capacity Index and Resilience Structure Matrix) and the indirect (determinants of food security loss and recovery). The USAID Office of Foreign Disaster Assistance (OFDA), Office of Food for Peace (FFP), and the USAID East Africa Regional Mission used the TANGO framework in 2016 to measure the progress of resilience in Somalia for The Enhancing Resilience and Economic Growth in

Somalia Program that runs until the end of 2017. The World Vision Somalia Resilience Programme (SomRep) on the other hand, in 2016 relied on a more academic evaluation of their resilience program by combining the year 2014 work of Barrett and Constas at Cornell, as well as further elaboration undertaken collaboratively under the Resilience Measurement Technical Working Group. The BRICS consortium, which at the time of writing was also implementing resilience-building activities, was however not clear as to what methodology or framework they were going to use to measure resilience. In 2016 and early 2017 the consortium was using digital technology in processing and storing real-time information which has a potential of being used to capture the progress of resilience building in the future. The data collected included household demographic elements as well as indicators related to water and sanitation, health and education as well as some important food security indicators such as Coping Strategy Index, Food Consumption Score and the Dietary Diversity Index. A key informant confirmed: "*As an agency we also rely on the use of Geographic Information Systems (GIS) enabled automated data collection devices that are combined with repository servers for real time information storage and queries. This has enhanced our measurements of resilience even in remote and hard to reach locations of Somalia", (NGO representative, Nairobi 2017).* The same questions were put to the respondents through a questionnaire. The results to this question are displayed in Figure 5.2 below.

Figure 5-2: The existence of measurement of resilience to food insecurity in Luuq.



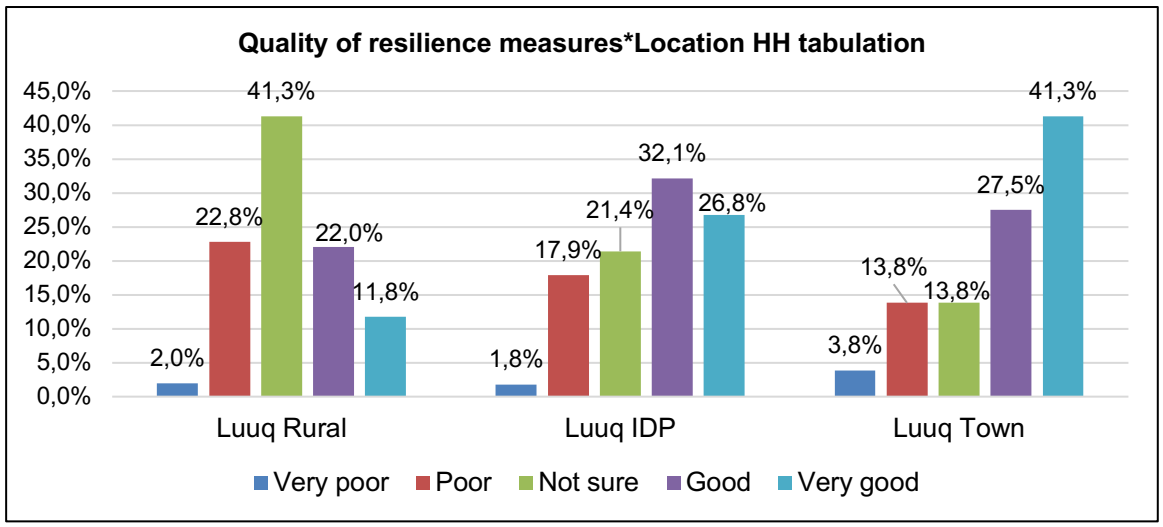
The results above show that there were mixed reactions to the existence of resilience measurements. The bulk of the respondents in Rural (72.4 percent) and almost half in Town (49.8 percent) felt that there were no measures to ascertain the attainment of resilience. The respondents in the IDP camps (64.1 percent) however indicated that there were some measures. While there was a limited number of respondents who reported the existence of the measures the research sought to outline if those that had trust in the system felt that it was giving quality results on which the humanitarian agencies could then rely upon. As such the research went further though to exhaust the options by seeking to elucidate from the respondents if they were other methods of measuring resilience that were known to the respondents that could potentially capture the concept in a more accurate way. The results of this question are displayed in Table 5.8 below.

Table 5-8: Are there any measures known to respondents that have not been implemented but give a more accurate measure?

Other known methods to measure resilience * Location of household Cross tabulation					
		Location of household			Total
		Luuq Rural	Luuq IDP	Luuq Town	
Suggested methods to improve measurement	None at all	20.1%	25.0%	21.3%	21.0%
	Maybe	33.1%	28.6%	28.8%	31.5%
	Not sure	29.1%	14.3%	32.5%	27.7%
	Yes, a few methods	11.0%	19.6%	11.3%	12.3%
	Yes, a lot of methods	6.7%	12.5%	6.3%	7.4%
Total		100.0%	100.0%	100.0%	100.0%

Across the locations there was very little suggestion of other methods to measure resilience and all locations had a very small percentage that indicate that there is very little knowledge of some other methods of measuring resilience. The percentages of 'No methods' were 55.9 percent, 62.5 percent and 53.8 percent in Rural, IDP camps and Town respectively. The frequency percentage of 'Not sure' was high across locations (41.7% in Rural; 35.7% in IDP Camps and 46.3% in Town). The Chi-Square analysis showed that this was across the locations as the analysis showed that there was no relationship between the location of the respondent and suggested method of measurement *(Chi-Square = 10.699, df = 8, p =0.219).* Even though there was a small fraction of the respondents that felt that there were some measures of resilience the research felt that it was prudent to elucidate the quality aspects of such measures where they existed. Figure 5.3 shows the quality of the resilience measures that have been implemented in Somalia as based on the perceptions of the respondents.

Figure 5-3: The quality of the resilience measures

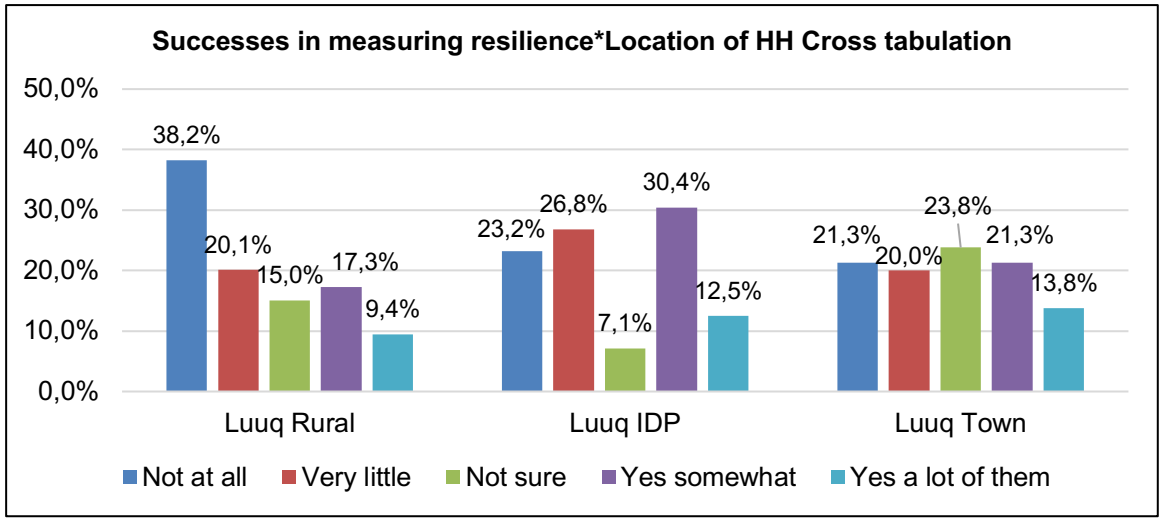


The results on Figure 5.3 show that the attempts to measure resilience did to some extent generate quality information for the measurement of resilience. The IDP and the Town respondents indicated that the results generated quality information in most instances at 58.9 percent and 68.8 percent respectively. The results for the rural location were almost balanced between “Not sure’ and “Good quality” (41.3 % and 43.8% respectively). From the FGDs it was evident that the respondents felt there was quality information given to the monitors, but they were not sure if this was really the right information to measure resilience. A member of an FGD mentioned that: “*When monitors come and ask us about the projects being implemented by NGOs we give them accurate information every time” (FGD participant, Horseed village, Luuq Town, 2017).* This was also affirmed through the key informants who asserted that they had robust data collection tools that generated quality information especially when they were directly implemented, as is the norm in the more secure locations such as the IDP Camps and the Town. The KII also indicated that the procedure of using third party monitors in the rural areas leads to loss of accuracy and increases the gap between measuring a specific resilience and the measurement of any other project impact. The figures above agree with the literature review which indicated that the currently existing surveys seem to be different in how they define what they attempt to measure and the methods they employ to eventually measure it.

5.4.3 The extent of success of measures in giving a valid measure of resilience building

This was a rather difficult phenomenon to measure, as the interpretation of the respondents was more biased towards the performance of the projects that had been implemented regardless of whether they were on resilience building or not. Nonetheless, the respondents from across the different locations seemed to believe that the measures of resilience were not successful, as they believe that the success of the measurement was strongly aligned to their feeling of being resilient even though this is debatable. The key informants from the implementers however believed that the proxy indicators they had developed were able to capture most of the indicators for resilience building in line with what was discussed in the literature review in Chapter 3 Section 12. The next Figure 5.4 displays the perception of the respondents on successes in measuring resilience.

Figure 5-4: Are there successful measurements of resilience in Luuq?



The results above show that in the rural areas and in the IDP camps 58.3 percent and 50 percent of the respondents felt that the measurements were not successful. The figure was down to 41.3 percent in Town. The Chi-Square analysis showed that there was no evidence of a relationship between the success of measurements and the location of the respondent *(Chi-Square = 19.375, df = 8, p = 0.013).* This trend seems to indicate that there was a

mismatch between what the humanitarian agents claimed to be measuring and the feelings of the respondents as the KII had indicated that they did in fact measure resilience. A key Informant mentioned that: "*We do measure resilience in all our activity and use the same instruments for data collection for all our projects for consistency" (NGO representative, Nairobi, 2017).* This might imply that these measures did not collect much of the subjective components of resilience of which the literature review in Chapter 3, Section 12 was very important in the quest to accurately measure resilience. While the results above did indicate a low level of successful measures, the next question solicited the level of confidence that the respondents felt the implementers had in their systems. This was measured by the desire to repeat the same measure in the future. The results of this enquiry are shown in Table 5.9 below.

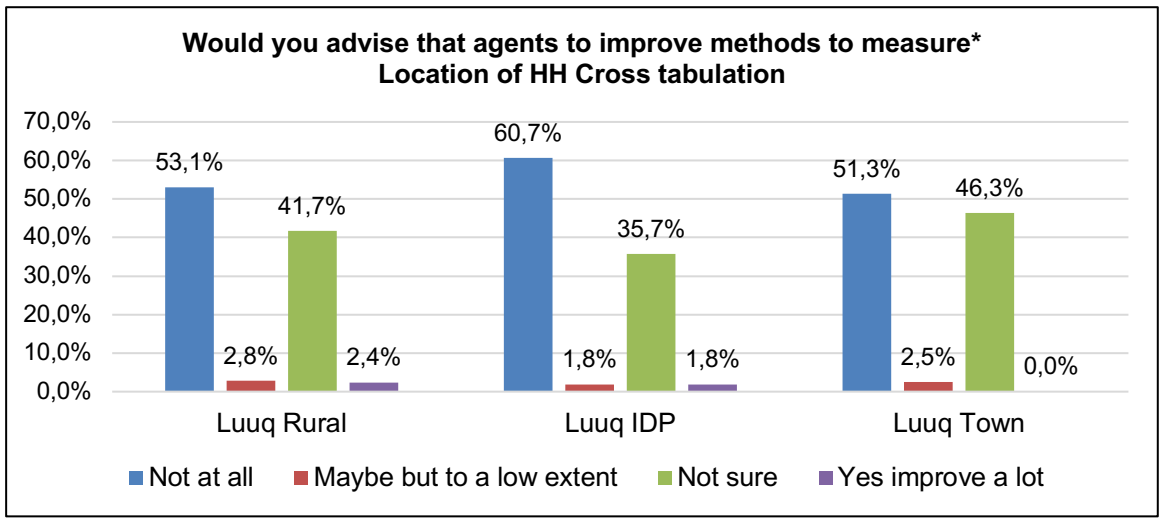
Table 5-9: Will actors repeat some few methods that they have used in the future?

Accuracy of measures * Location of household Cross tabulation					
		Location of household			
		Luuq Rural	Luuq IDP	Luuq Town	Total
Accuracy of measures	Not at all	5.1%	16.1%	5.0%	6.7%
	Maybe	12.6%	21.4%	16.3%	14.6%
	Not sure	52.0%	39.3%	46.3%	49.0%
	Sure they might	23.2%	12.5%	15.0%	20.0%
	Absolutely sure they will	7.1%	10.7%	17.5%	9.7%
Total		100.0%	100.0%	100.0%	100.0%

The results in the table above show that most of the respondents chose to be rather indifferent to this question and professed ignorance on whether the agencies would repeat the same measures. This is shown by 52 percent, 39.3 percent and 46.3 percent for rural, IDP and Town respectively. The "Not Sure" results were the highest frequency among the responses from the different locations as mentioned before. This perhaps was a combination of not being privy to the reasons why the agencies chose that particular methods of measure or could be linked to the respondents not being aware of what was being measured and for what purpose. This element was further pursued in the FGDs

and confirmed, as was expected, most of the participants felt that not only were they not aware of what mattered to agencies in terms of measure, but they also did not feel that they were an important component in the process. This does bring the concept that was explored by Weichselgartner and Kelman (2015:251) and Chapter 3 section 2 of resilience of what to what and at what scales? To further ground the concept that was being developed the researcher inquired if the respondents would have urged the humanitarian agencies to repeat this type of measurement if they were given an opportunity to do so. The results of this enquiry are shown in Figure 5.5 below.

Figure 5-5: If given a chance will respondents advise the actors to improve the measurement criteria?

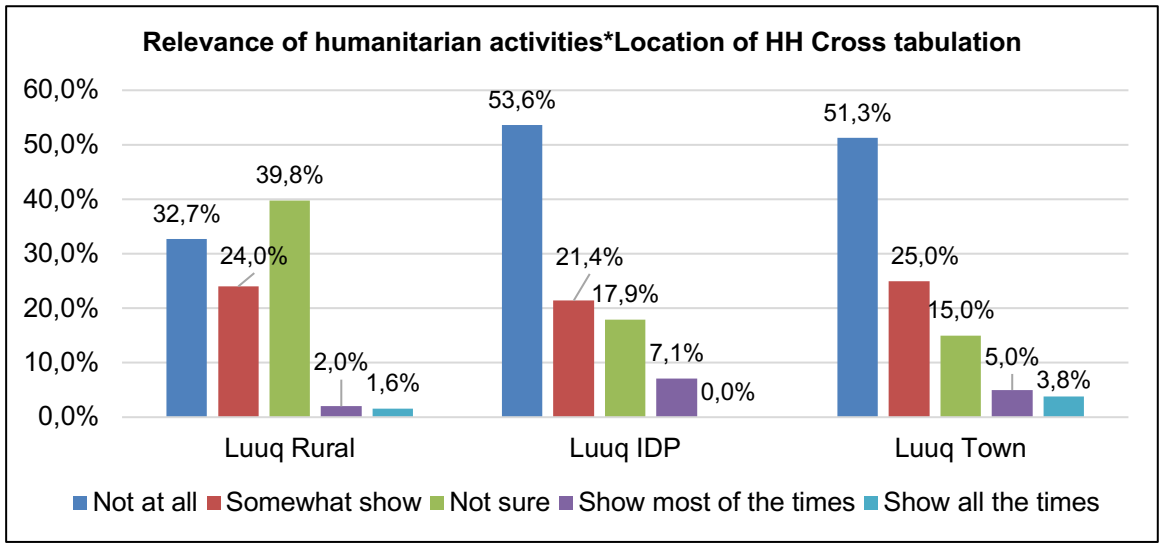


The Figure 5.5 above shows that most respondents felt that they will not advise the agents to improve the measurements and did not have suggested methods to improve measurements. This was across all the locations as shown by the Chi-Square analysis that showed that there was no relationship between location and the advice the respondents will give *(Chi-Square = 3.551, df = 6, p = 0.737).* There was however a sizably large percentage of respondents who were "Not sure" which tallies with the reference in literature in that there is paucity of information when it comes to the measurement of resilience.

5.4.4 The effectiveness and relevance of resilience measures to the context of Somalia

The measure on the applicability of the concept of resilience including measuring it to the Somalia context is very debatable. The respondents from the rural areas that have lower interaction with the resilience building projects seemed to infer that the measurement criteria used by the humanitarian agencies were totally not applicable to the Somali context, while those in more secure location seemed inclined to be on the contrary. This is probably explained by the KII and the FGDs, which revealed that there was bound to be more monitoring in the more secure locations such as the Town and the IDP camps as compared to the rural areas. A key informant mentioned that: "*Security and access by NGO workers is a major concern, the years 2011 to 2013 were the worst, as organisations could not access most of the implementation area. We were however able to monitor the more secure locations even during the periods of insecurity" (Donor representative, Nairobi, 2017).* The donors and the humanitarian agencies explained that they employed third party monitors to access difficult locations of Luuq. A discussion with the third-party monitors however revealed that they were also risk averse but probably to a lesser extent as compared to their contractors. The next section discusses the ease of operating in Somalia as evidenced by the respondents in Luuq. Figure 5.6 illustrates the views of the respondents on whether relevant humanitarian actors were implementing activities that produced the results that the beneficiaries expected and made a difference in their lives. This question was meant to elucidate the feelings of the beneficiaries on the successes of the humanitarian interventions.

Figure 5-6: Does resilience activities show results that are expected by the beneficiaries?



The Figure 5.6 above shows that across all the locations the feeling was that the implemented activities did not truly show the desired results. The results indicate that this feeling was across the board with the IDP and the Rural folk registering 75 and 76.3 percent respectively. This however runs contrary to the evaluations of the humanitarian agencies that indicated that these projects were a success and resulted in a major change of the fortunes for the respondents. The Chi-Square analysis of the locations and the relevance of humanitarian activities are shown on Table 5.10.

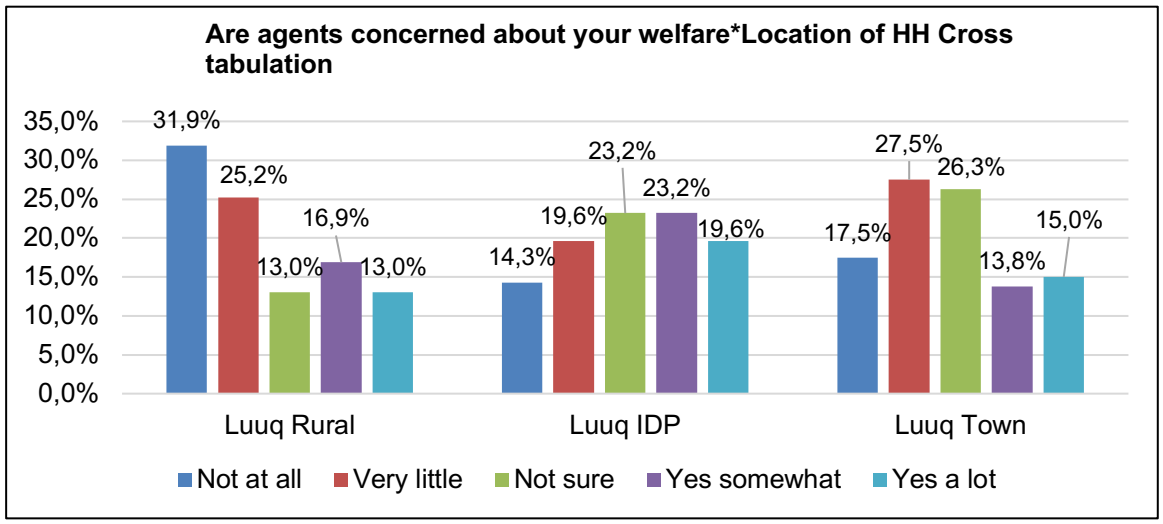
Table 5-10: Chi-Square analysis of location and relevance of humanitarian activities

Variable	Degrees of freedom	Chi-Square Value	P - Value
Location versus relevance of humanitarian activities	8	31.797	.000

The results show that there was strong evidence of a relationship between the location of the respondent and the feeling "if the resilience activities showed the expected results" *(Chi-Square = 31.797, df = 8, p < 0.005)*. The results indicate that the responses are significantly different among the locations with some locations having stronger feelings than the others due to the unique settings of each location. The next question attempts to measure the feeling of the

respondents towards the attitude of the agents and if they felt that the resilience measurements were concerned about their welfare. The Figure 5.7 below shows the results of this enquiry.

Figure 5-7: Concern of agents about the welfare of the respondents



The results on Figure 5.7 above show that the 57.1 percent of respondents in the Rural areas believed that there was no relevance in the measures that were being implemented by the agents to measure resilience. The trend was somewhat improved in the IDP camps with 42.8 percent asserting that there was relevance. The figures from the Town were not inclined so much towards any of the opinions however the highest frequency was 45 percent believing that there was no relevance in the measures of resilience. The Chi-Square analysis showed that there was no relationship between the relevance of the methods and the location *(Chi-Square = 20.055, df = 8, p = 0.10)*. The resilience measures were also explored through the ability to meet the objectives as set out by the agents and as explained to the respondents through the various monitoring mechanisms that were put up by the humanitarian agents. The results of this enquiry are displayed on Table 5.11 below.

Table 5-11: The ability of the measures to meet their objectives

Do the measurements meet the objectives * Location of household Cross tabulation					
		Location of household			Total
		Luuq Rural	Luuq IDP	Luuq Town	
Do the measurements meet the objectives	Not at all	23,2%	10,7%	16,3%	20,0%
	Very little	30,7%	21,4%	17,5%	26,7%
	Not sure	11,0%	16,1%	15,0%	12,6%
	Yes somewhat	19,7%	30,4%	27,5%	22,8%
	Yes, most of the times	15,4%	21,4%	23,8%	17,9%
		100,0%	100,0%	100,0%	100,0%

The results on the table above show that there was a mixed view within the respondents depending on the location on whether the agents met their objectives of measuring resilience. Most of the rural population at 53.9 percent felt that the agents were not meeting the objectives of resilience measurement. An FGD participant mentioned: *"Most NGOs here measure what they want and usually ask us the same things every year. In most instances the questions they ask do not capture our own (local) definition of being resilient", (FGD participant, Dooryanley village, Luuq Rural, 2017).* Most of the respondents in the IDP Camps and Town were however of the opinion that the objectives were being met at 51.8 and 51.3 percent respectively. As with the previous question the Chi-Square analysis showed that there was no association between the location of the respondents and the meeting of objectives in measuring resilience *(Chi-Square = 16.44, df = 8, p = 0.0036).*

5.4.5 The Somalia context and the understanding of resilience building

The respondents pointed out that resilience as defined by the humanitarian agencies was an important intervention and this was true across the locations. They felt that the concept was very important but needed to be adjusted to the Somali context. In mentioning this, they cited the prolonged fighting as one the measures that resilience interventions needed to consider in their programming and in their measurement. Some of the rural respondents in the FGDs mentioned that Somalia had been in conflict for a long time such that humanitarian agencies should now have found innovative ways of implementing their activities including

implementing and measuring resilience building initiatives. They felt that the humanitarian actors had not moved with speed to innovate the way they measured resilience, though admitting that while the Somali context was totally different from the other locations there is need to develop context specific tools and measures without having to worry about standardisation across countries and locations. The Table 5.12 displays the results from the analysis on the ease of operating in Luuq.

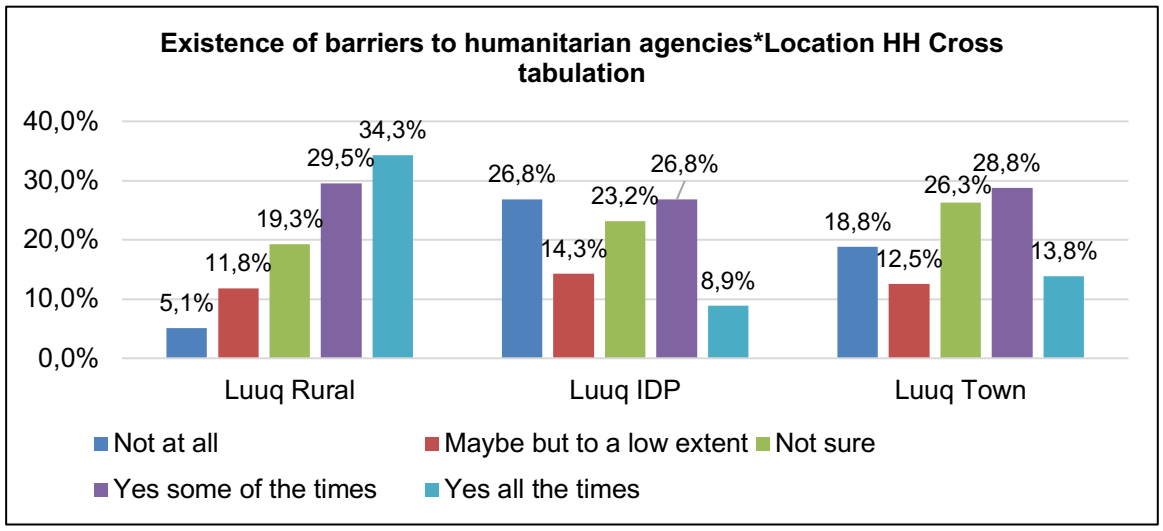
Table 5-12: The operating environment in Somalia for resilience building actors

The ease of operating in Luuq * Location of household Cross tabulation					
		Location of household			Total
		Luuq Rural	Luuq IDP	Luuq Town	
The ease of operating in Luuq	Not at all	18.5%	19.6%	16.3%	18.2%
	Somewhat easy	25.6%	17.9%	23.8%	24.1%
	Not sure	8.7%	32.1%	17.5%	13.8%
	Easy in most times	24.8%	16.1%	23.8%	23.3%
	Easy in all times	22.4%	14.3%	18.8%	20.5%
Total		100.0%	100.0%	100.0%	100.0%

The results on Table 5.12 above show that across all the locations the respondents seemed to be variable in agreeing to the conditions of the operating environment in Somalia. None of the locations were above the 50 percent threshold on whether the environment was complicated or easy for the humanitarian players to operate. This is shown in the Rural location with 47.2 percent and the Town with 42.6 percent on "Easy to operate" in Somalia, while the IDP Camp respondents were clearly split between the two broad alternatives. The FGDs however did agree that the situation had become difficult for humanitarian players compared to the past, though they also had mixed views on insecurity. A participant in an FGD remarked that: "*The situation in Luuq has been like this for a very long time, as such we expect that the NGOs are now used to this situation and have made plans on how to access the areas they consider problematic" (FGD participant, Haanoy village, 2017).* Some felt that insecurity had become part of the Somalia narrative and therefore the organisations should find ways to go around this impediment and not treat it as a

barrier to their activities. The Figure 5.8 below shows the perception of the respondents to existence of barriers to implementation in Somalia.

Figure 5-8: Are there barriers faced by resilience building actors in Somalia?



The figure above shows that there was a marked difference in the perception of the existence of barriers depended on the location of the respondent. 64 percent of the rural respondents felt that there were significant barriers by humanitarian agencies. In the Town areas and in the IDP camps this feeling was much lower at 42.6 percent and 35.7 percent. This could have a lot to do with the security that was provided by the army in the IDP camps and in the Town as compared to the rural areas. The Rural areas were vast and very far apart such that it was possible that humanitarian agents do not find value in dealing with people who have a greater geographical spread as they tend to be driven by numbers. The results of the Chi-Square analysis for the differences among the locations are shown on Table 5.13.

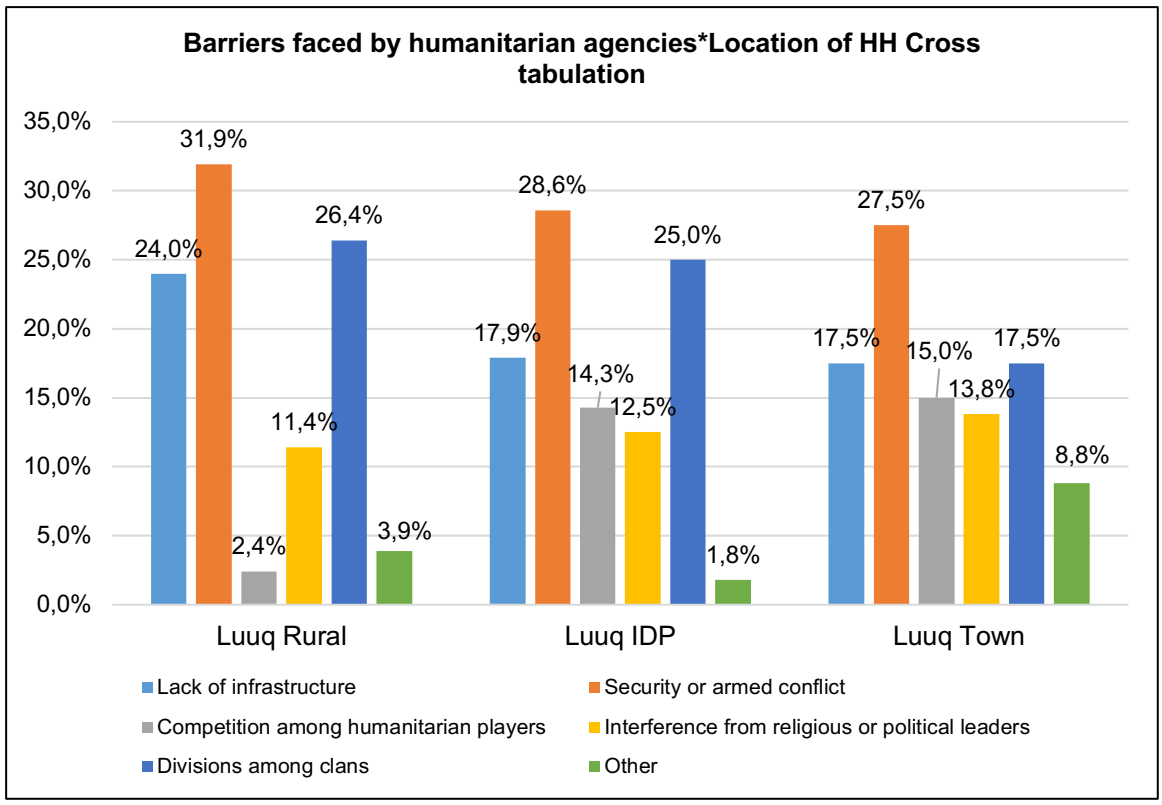
Table 5-13: Chi-Square analysis of security and location

Variable	Degrees of freedom	Chi-Square Value	P - Value
Security versus location	8	44.085	.000

The results on the table above show that there was strong evidence of a relationship between the location of the household and the perception of the

existence of barriers *(Chi-Square = 44.085, df = 8, p < 0.005, V = 0.238)*. The question was further asked to explore the kind of barriers that were experienced by the humanitarian agencies in implementing resilience-building measures. The results of this question are shown in Figure 5.9 below.

Figure 5-9: The details of the barriers faced by resilience building actors in Somalia



The figure above shows that security or armed conflict was the major barrier to humanitarian agents across the locations with a percentage of and 31.9 percent, 28.6 percent and 27.5 percent in Rural, IDP Camps and Town respectively. A key informant remarked: *"If it were not for the armed conflict and the insecurity from Al-Shabaab, Somalia would be like any other country facing challenges. We have operations in Sudan, South Sudan and Yemen who have similar challenges but are more secure to operate in compared to Somalia", (International NGO worker, Luuq Town, 2017).* Coming second across the locations was the division among clans, which was explained through the focus groups discussions as also a precursor to the conflict, and most respondents believed that inter-clan violence

was the major cause of insecurity as opposed to the normally believed Al Shabaab instigated fighting. Perhaps this is a manifestation of what is discussed in Chapter 2, Section 2, where some scholars have pointed out that life in Somalia has become a normality within an abnormality, where the citizen now view the presence of Al Shabaab as part of a normal system in their day to day lives. As a follow up to the question above, the respondents were questioned on how security in particular was an issue and a barrier to implementation and monitoring of the project outputs and outcomes. Table 5.14 below shows the reaction of the respondents in terms of how the impact of improved security could have on service delivery in terms of both implementation and monitoring.

Table 5-14: How does improved security impact on service delivery?

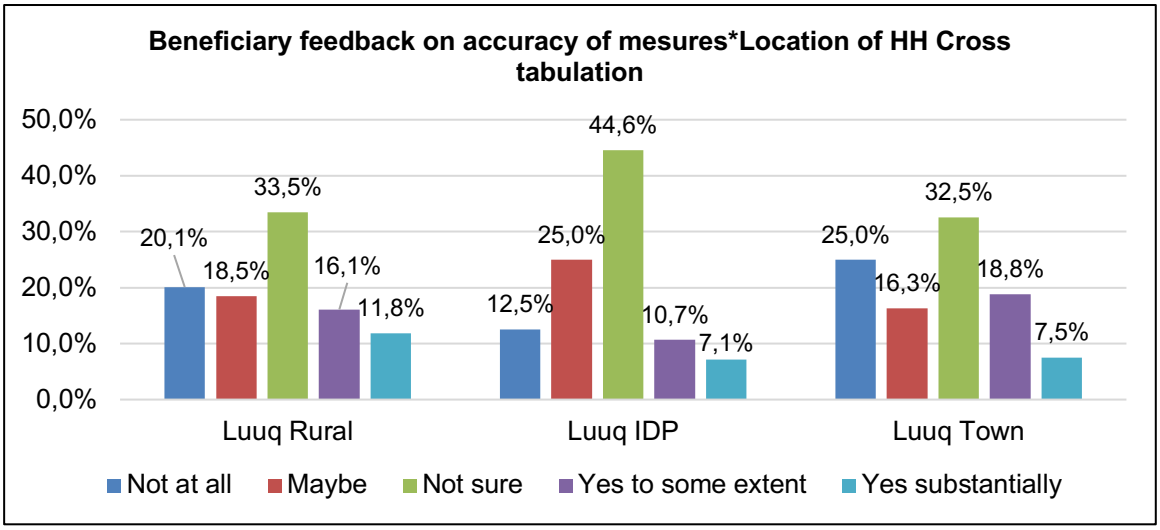
	Location of household					
	Luuq Rural		Luuq IDP		Luuq Town	
	Implementation	Monitoring	Implementation	Monitoring	Implementation	Monitoring
Not at all	24.4%	25.6%	30.4%	23.2%	22.5%	18.8%
Improve somewhat	8.7%	15.7%	17.9%	19.6%	17.5%	20.0%
Not sure	24.4%	3.9%	16.1%	1.8%	22.5%	10.0%
Improve to a large extent	28.0%	31.5%	25.0%	25.0%	26.3%	28.8%
Improve drastically	14.6%	23.2%	10.7%	30.4%	11.3%	22.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The table above shows that there was a mixed view on how improved security would affect both implementation and monitoring of resilience building projects. The Rural communities believe that if security improved, implementation would improve (42.6 percent) while monitoring (54.7 percent) would improve. In the IDP camps the figure for improved implementation went up to 35.7 percent and monitoring to 35.4 percent while in Town the figures were also high at 37.6 percent and 51.3 percent. The general trend showed that there was belief that improved security will generally lead to better implementation and monitoring of project outcomes.

5.4.6 Suggested improvements to the current resilience measurement methods

The respondents seemed to be rather split on the need to improve resilience measurements. In the FGDs in the rural population the general feeling was that there is need to rework the current resilience programming and come up with new ways of measuring. This was not so significant in the IDP and urban settlements. The KII showed that the major cause of the rural population feeling that way was linked to the level of humanitarian efforts in their locations. It is possible that they felt that an improvement in the measure could possibly result in better programming. A key informant mentioned that: "*The programming in the rural areas is influenced by access and as such the residents in those areas might feel left out and ask for more effort due to reduced presence of humanitarian players in the rural areas" (Regional Intergovernmental body representative, Nairobi, 2017).* On the other hand, the KII showed that there was not much change in the way the humanitarian agencies measured resilience as compared to how they had been measuring other interventions in the years past. As such they felt that it was possible that the respondents felt that a change in program and strategy should result in an equal change in the mechanism of measure. As a way of elucidating from the respondents' ways in which improvements could be made to measure resilience to food insecurity a set of three questions was administered. The respondents were questioned if they felt that the current methods of measuring resilience needed to be improved for them to be able to capture accurately all the components for an accurate measure. The responses to this question are displayed on Figure 5.10 below.

Figure 5-10: Should the current methods of measure be improved?



The results above suggest that in the population was split between "No need of improvements" and "Not sure". The Rural and Town population were more inclined towards "No need of improvements" at 38.6 percent and 41.3 per cent respectively. The IDP camps population was 44.6 percent on "Not sure". The results were not much influenced by the location as indicated by the Chi-Square analysis, which showed that there was no relationship between location and the need for improvement *(Chi-Square = 8.882, df = 8, p = 0.352).* The next paragraph discusses the results from the interrogation on whether humanitarian agents were willing to listen to advice given to improve measurement of resilience to food insecurity. This question was meant to elucidate the willingness of the agents to consider the participation and feedback of the respondents into the strengthening of their measurement systems. The results of this enquiry are shown on the Table 5.15 below.

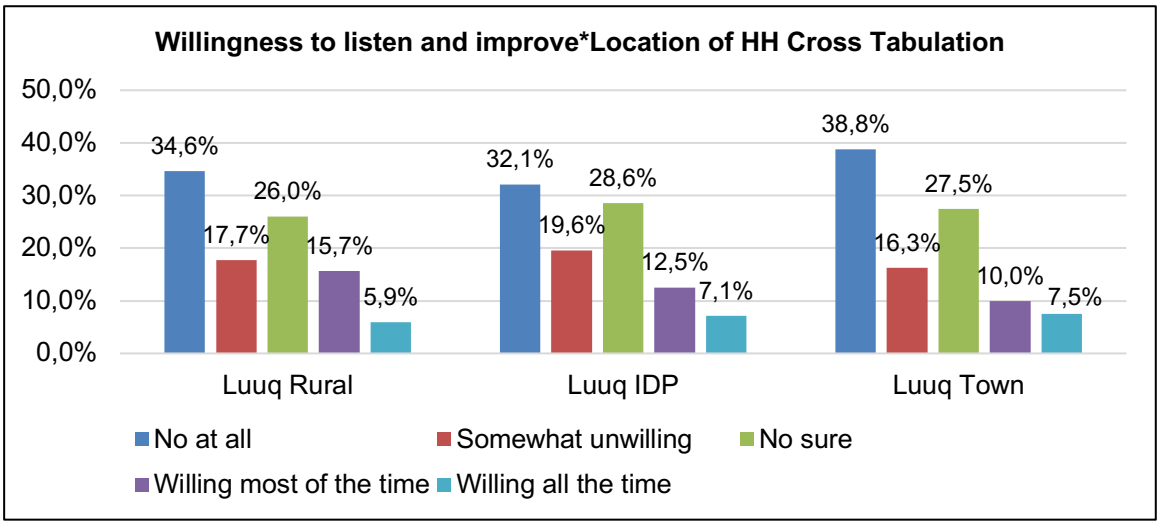
Table 5-15: Do you believe agents consult the affected enough and use the voices of the affected to effect change?

Consultation processes with beneficiaries * Location of household Cross tabulation					
		Location of household			Total
		Luuq Rural	Luuq IDP	Luuq Town	
Consultation processes with beneficiaries	Not at all	16.5%	10.7%	30.0%	18.5%
	Very rarely	33.1%	37.5%	26.3%	32.3%
	Not sure	13.4%	7.1%	12.5%	12.3%
	Frequently	18.1%	32.1%	18.8%	20.3%
	Always	18.9%	12.5%	12.5%	16.7%
Total		100.0%	100.0%	100.0%	100.0%

The results show that despite its complexity, the measurement of resilience was not any different from the other evaluations that were carried out by implementers in that the voices of the respondents or the affected was considered mainly for expediency rather than as a condition of improving systems and learning. Across the locations the perception that the agencies will consult was rather low at 37 percent, 44.6 percent and 31.3 percent in Rural, IDP camps and Town respectively. One key informant opined: *"Our beneficiaries do not know much about resilience, as it is a new concept, which we (the NGOs) are still trying to understand it ourselves, as such it would not make much sense to ask them to improve the measurement of something they do not understand", (NGO representative, Nairobi, 2017).* The perception was location dependent as shown by the Chi-Square analysis, which shows that there is strong evidence of a relationship between the location of the respondents and the perception of being consulted to *(Chi-Square = 17.726, df = 8, p = 0.023*). The relationship was however not very strong as shown by the *Phi of 0.213*.

The last question in this set was on the willingness of the agencies to improve when suggestions are made or when there was contribution from the respondents. It must be noted that this question was based on the assumption that the respondents were being asked to make recommendations, which the previous results have shown this to be rather very low. The Figure 5.11 below shows the results of this enquiry.

Figure 5-11: Is there confidence to take advice and improve from the agents?



From the figure above, it can be deduced that in general there was no faith in the humanitarian players taking advice from the respondents on issues to improve measurement of resilience. This was across the locations and the results are as follows: 52.3 percent in the rural, 51.7 percent in the IDP camps and 55.1 percent in Town. While there was this acknowledgement of lack of willingness to improve one FGD participant remarked: *"We have experienced a lot of droughts here. It is difficult for us to do things on our own. We wish the NGOs could continue supporting us as on our own we will die of hunger", (FGD participants, Taleex, Luuq Town, 2017).*

5.5 A CASE FOR SUBJECTIVE MEASUREMENT OF RESILIENCE

This research also administered a set of Likert scale questions to the respondents in Luuq as a way of understanding what they felt the resilience building measures had contributed to their lives especially at the level of the household. These questions sought to capture the interactions of household and individual-level judgements and attributes with wider institutions, behaviours and social norms that broadly affect reactions and responses to food insecurity. The questions were built around some of the pillars of resilience building to food insecurity that included:

- Preparedness to future shocks
- Ability to recover within a short period of time
- Ability to adapt to changing environments
- Availability of assets especially financial to use for recovery
- The strength of the social network to help one to recover
- Learning from experience to help the household to recover, and
- Availability of early warning systems to assist the household to anticipate and prepare.

The analysis of these results follows in the next section and shows to what extent the household felt empowered to endure the threats of food insecurity or drought.

5.5.1 Analysis of key measures of resilience to food insecurity

The Principal Component Analysis was carried out on the seven questions related to the above-mentioned components of resilience to ensure that the questions that were designed related to the construct of measuring subjective resilience to food insecurity. The results of the analysis are shown on Table 5.16 below.

Table 5-16: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,613	37,330	37,330	2,613	37,330	37,330	2,589	36,992	36,992
2	1,113	15,901	53,230	1,113	15,901	53,230	1,102	15,739	52,731
3	1,006	14,367	67,598	1,006	14,367	67,598	1,041	14,867	67,598
4	,943	13,478	81,076						
5	,900	12,862	93,938						
6	,310	4,425	98,363						
7	,115	1,637	100,000						

Based on the results presented on Table 5.16, it was observed that components 1, 2 and 3 gave an Eigen value of 1.0 or greater and that they accounted for 67.6 percent of the shared variance in the overall construct. This therefore led to three questions being selected for a further analysis. Before the analysis was carried out the three questions that were constructed to measure the resilience to food

insecurity were grouped into three types of capacities (prepare, recover, change) as shown below on Table 5.17.

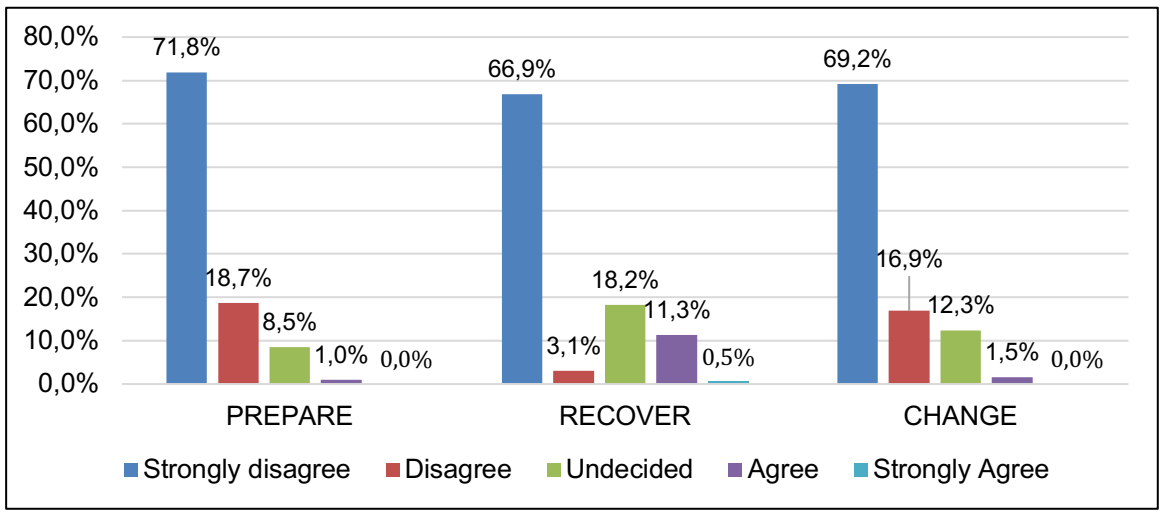
Table 5-17: Resilience capacity analysis questions

CAPACITY	QUESTION
PREPARE	**Question 35**: "Compared to last year, my household is much better this year at coping with and adapting to the threats posed by drought?"
RECOVER	**Question 34**: "If a drought were to occur this year in Luuq, my household would be able to fully recover from the damage caused by the drought within 6 months?"
CHANGE	**Question 36**: "If the rate and intensity of drought were to increase significantly in the next 5 years, my household would have the ability to successfully adapt to the changing threats posed by drought".

Adapted from (Jones & Tanner 2017:235; Jones, Samman & Vinck 2018:4).

The respondents were then requested to make a self-assessment of their anticipated capacities in reaction to the above questions, their livelihood strategy in response to the threat of food insecurity of which the analysis is shown on Figure 5.12 below.

Figure 5-12: Perception of capacity to respond to drought



From the figure above, it can be observed that most respondents felt their households were ill equipped in all the capacities to respond to food insecurity. The respondents were very quick to point out the areas that needed to be addressed to make them more resilient with very little probing. They mentioned issues around rebuilding assets such as livestock, farming and business support as key to rebuilding their resilience and which the intervening humanitarian

agencies needed more focus. In all the capacities more than 65 percent of the respondents indicated that they would not be prepared (90.5 percent), recover (70 percent) or change (86.1 percent) in the event of a food insecurity shock. From the results above the Spearman's correlation coefficient was calculated to ascertain the relationship between the capacities and the results are shown on the Table 5.18 below.

Table 5-18: The Spearman Correlations between resilience capacities

	PREPARE	RECOVER	CHANGE
PREPARE	1		
RECOVER	.763**	1	
CHANGE	.711**	.880**	1

**. Correlation is significant at the 0.01 level (2-tailed).

As expected, the rank order correlations among the three capacities were positive and high as shown in Table 5.18. The highest correlation (.880) was between reporting being able to change and recover while the lowest (.711) was between being able to prepare and to alter behaviour in response to food insecurity. There was a strong, positive correlation between the three capacities to prepare, recover and change, which was statistically significant *(Spearman's rho = .669, p <0.01).*

5.5.2 The Cronbach's Alpha (Reliability Coefficient)

The Cronbach's Alpha is an important concept in the evaluation of questionnaires. Cronbach's alpha simply provides one with an overall reliability coefficient for a set of variables and how well a test consistently measures what it is supposed to measure. Table 5.19 shows an overview of the Reliability Statistics that provides the actual value for the coefficient of reliability.

Table 5-19: Cronbach's Alpha Coefficient

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.894	.916	3

From the table above, it can be noted that the value of the Cronbach's Alpha was 0.911, which indicates a high level of internal consistency in measuring resilience to food insecurity. As such the three capacities fall within the accepted threshold for internal consistency. Table 5.20 presents the values of the Cronbach's alpha if a question was deleted.

Table 5-20: Cronbach's Alpha item total statistics

Question	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1	3.22	3.414	.765	.590	.899
2	2.85	1.805	.892	.812	.828
3	3.14	2.949	.866	.777	.806

The Item-Total Statistics table presents the value of the Cronbach's Alpha if a question was deleted from the scale. This is based on the note that a reliability coefficient of 0.7 or higher is considered acceptable in most Social Sciences Research situations. Since the highest value of the Cronbach's Alpha was obtained for the three questions it implies that these questions alone have the potential to subjectively measure the latent variable (Resilience) for the survey carried out in Somalia. The three items give credence for construction of a resilience perception index. It is important however to mention here that while the three questions appeared capable of producing a reliable measure of resilience more research should be carried out on the three capacities in isolation to obtain more understanding into the unique factors associated with each.

5.6 CONCLUSION

This chapter has presented the results that were obtained based on the analysis of the processes described in Chapter Four. The chapter started with an introduction of the schematic way the results are shown then followed by the demographic characteristics of the respondents and then the presentation of the results. The results were analysed according to the locations of the respondents due to the unique features of these locations, which have the potential to

influence the perception of resilience. The Chi-square analysis was used as the main method of analysis to make a comparison of the different locations in Luuq. The subjective questions on resilience were also put across to the respondents as a way of coming up with a resilience measuring method in fragile contexts. The presentation of the results in this chapter focused on the factual outcomes of the analysis. The next chapter discusses the results in detail including the implication of such results to the resilience question. The next chapter also ties up all the loose ends of the thesis through offering a discussion on the results that were obtained in this research and also offers some recommendations not only on the measurement of resilience but also on future work that still needs to be done to make the concept of resilience more understood especially in fragile context in which it holds so much promise.

CHAPTER 6 : DISCUSSION AND CONCLUSION

6.1 INTRODUCTION

The objective of this thesis was to interrogate how valid resilience building is as a concept in development in the context of food security in Somalia. The previous chapters articulated the concept of resilience focusing on the myriad of definitions, the complexities of measuring it, the complications of the resilience concept in the context of Somalia, the research design and finally the presentation of results in Chapter Five. This chapter ties it all through making recommendations based on the research findings and charting the way forward on the basis of these results. The first chapter introduced the concept of resilience and showed how it had become an organising factor and a resource allocation template for donor organisations, academia and related agencies. The chapter also argued that since the concept had become important for the myriad of players, a further scrutiny and elucidation of the concept was justified and even so in fragile contexts in which most of the assumptions and fundamentals of building resilience do not hold or are absent. Chapter Two introduced Somalia and how the country had moved from the intricacies and the power broking confines of the cold war to the current status of stability within a conflict and under the governance of a weak and non-fully functional or widely accepted government. The chapter sought to explain how a concept as complex as resilience can be further put into question when being implemented in a complex political environment. In Chapter Three the concept of resilience was reviewed. The chapter took resilience from its infancy in the 1970s and how it had evolved through the years while at the same time maintaining its roots in complex systems theory. The chapter took an understanding that the concept had even become important in light of the dawn of the anthropocene epoch and had found an important place in rallying development in the face of the impact of human nature on the biosphere. The chapter also looked at the various methods and challenges that had been experienced in measuring the concept concluding that complex as it is, it is imperative that an acceptable measure needs to be found

and agreed upon, and that there is potential of some of the measures to be implemented in fragile contexts. Chapter Four introduced the research methodology that was employed in this thesis. The chapter extolled the use of mixed method research as a more acceptable way of research in this particular instance especially when looking at the ability of the different methods to self-regulate and correct through triangulation. The chapter discussed the sampling and the data collection methods including the ethics that were followed in ensuring that the research met the standards of a quality research. Chapter Five presented the results that were collected through the data collection tools and made some attempt to make sense of the numbers in relation to the measurement of resilience in Somalia.

This chapter (Chapter Six) ties up all the loose ends of this research by putting a discussion and making conclusions based on the research results. The chapter also offers some insights into some research opportunities that arise going into the future.

The purpose of the study was to contribute to building an understanding of the concept of resilience, through providing an empirical method of measuring resilience using food insecurity as a case study in the context of Somalia and proposing a usable measurement methodology for fragile contexts. The choice of Somalia brings into the fore the importance of focusing work on fragile states which cannot be overemphasised as trends show that humanitarian agencies will be directing more of their funding to these states. Again, it is expected that the fragile states will most likely increase in number going into the near future. As such with more funds being likely to be poured into resilience building initiatives, the understanding of the concept becomes important. This thesis thus seeks to add its contribution to the resilience work by providing further elucidation of the concept especially in relation to measurement and more specifically in the context of a fragile state such as Somalia.

The chapter is organised into six brief sections. The first section rehashes the objectives so as to place the discussion in the right context. It goes on to give

summaries of the findings as discussed in detail in Chapter Five. The section also focuses on the discussion of the research questions as derived from the objectives. The last part of the first section discusses the subjective measures of resilience as a potential resilience measurement methodology especially in fragile contexts. The second section discusses the empirical findings of this research focusing on how the findings can be translated from theory to practice. The third section discusses the theoretical implications of this research focusing on how the findings relate with the existing theory on resilience. The fourth part looks at the policy implications and how the findings can be used to influence policy decisions including how the same policy decisions can be put in practice in fragile contexts. In the fifth section the contribution of this study is discussed in detail. The sixth part focuses on the future research direction of resilience building, focusing on some issues that have been exposed by this research that need further elucidation.

6.2 THE RESEARCH PURPOSE AND OBJECTIVES

The principal research question of this thesis was to elucidate how valid resilience building is, as a concept in development in the context of resilience to food insecurity in Somalia. The main purpose was to contribute to building an understanding of the concept of resilience, provide an empirical method of measuring resilience using food security as a case study in the context of Somalia and propose a framework leaning on subjectivity that addresses some of the concerns and limits of resilience measurement that exist and are identified in the literature. The specific objectives of the study were:

- To analyse and understand what resilience is in relation to vulnerability.
- To build an understanding of the various methods that have been employed to measure resilience.
- To critique the relevance of such methods to the Somali context.
- To assess the appropriateness of current models of resource allocation and governance in Somalia Luuq district with reference to resilience.
- To offer suggestions for a more contextual, critical and valid measure of

resilience.

- To inform future areas of study and focus in the resilience forum with respect to the measurement of resilience

Based on the above objectives the next section gives a summary and a discussion of the findings.

6.2.1. Summary of the major research findings

While there are a number of findings that came out of this research, this section gives a broad summary of the primary findings. The major findings of the research indicated that there is a huge amount of resilience information that still needs to be generated from fragile context locations. It also showed that the operationalisation of the resilience-building concept in this context is still fraught with a lot of difficulties that stem from the understanding of the terms and the basic complication of these contexts in terms of access and ease of monitoring. What has been reemphasised though is that the concept remains what one decides to define and measure. With the increased funding and traction that the resilience phenomenon has brought to the humanitarian sector, the need for more scientific leadership is apparent. This leadership will assist in decoupling some of the concepts that are wrongly being defined as resilience building and also take the concept forward leading to more meaningful approaches being administered to the population at risk. There is still a lot of ground that needs to be covered in designing projects that really lead to increased resilience and separate these from other thematic areas that equally still need to be addressed. This however will take a long time as resilience has become more of a rallying point for resource allocation even though there is no meaningful resilience that is being built when one looks very carefully at the activities being conducted by humanitarian agencies. The same syndrome is also affecting the donor communities who have also amended their strategies to make them “resilience compliant” perhaps because the resilience concept has become a fashion fad within the donor groups as well. The other major finding is that the elements of resilience to food insecurity that include access to the five capitals for livelihood

diversification and sustenance have not seen much improvement in Somalia even though the presence of humanitarian actors has been very substantial over the years. This point is signified by the huge proportion of respondents who indicated that they did not feel resilient despite the efforts that had been put by the humanitarian organisations. The respondents were quick to identify areas that needed to be addressed to build their resilience. This is a sign of either a not-so-perfect consultative process with the project participants, a lack of understanding of the context or a combination of the above through non-meaningful interaction with beneficiaries as a result of inferred security instability caused by Al Shabaab. The other key finding of the research was that there is no meaningful measure of the achievement of resilience by the humanitarian actors which implies that projects or activities are simply being implemented through normal programming with no clear indications to measure resilience directly or at least using close proxies. While there has been a clear evolution from the traditional approaches of sustainability, climate change adaptation, poverty alleviation to the more robust term 'resilience' the measurements and monitoring mechanisms have not evolved. Most humanitarian actors who are using proxy food security indicators to measure resilience to food insecurity and are also using third party monitoring in areas where there is less security evidence this point. While the bulk of these challenges are not necessarily of the humanitarian sector's making, the complex Somali context is largely responsible for these failures. Firstly, because the recommended use of panel data is not possible due to migration of the population and secondly because third party monitoring cannot be discounted due to insecurity, but questions usually arise on the quality of the monitoring mechanisms if one was to compare with a stable location as opposed to the situation prevailing in Luuq District. The last component that was investigated was the potential of using subjectivity to measure resilience. The results show that there is merit in using some of the proposed questions to measure resilience, as it is an inherent quality that can be best explained by the subjects. This is even made more important in fragile contexts where the conduction of sentinel and multi-year surveys is not possible due to either

mobility of the population or the general security situation that affects the quality of the results. The use of subjective measures of resilience as such remains one of the strongest methods to gather information as opposed to the other methods that have been used in some locations before.

6.2.1.1 Resilience and vulnerability

The results in Chapter 5 section 4 showed that the two terms vulnerability and resilience are important in the face of global challenges such as poverty and changing climatic conditions that lead to intermittent shocks and perturbations. As these challenges become more frequent and complex the need to innovate and have new understanding of these terms is paramount and this is discussed in the results by IGAD on Chapter 5 section 4.1 with their more refined definitions of the two terms. It is apparent that while this might not have been the design, the increase in the popularity of the term resilience might have had a deflating impact on the use of vulnerability in academic and humanitarian discourses (Chapter 3 Section 1). The two terms however remain important and should be given equal prominence especially when it is apparent that they do not necessarily replace each other. Resilience presents a novel way of doing things and possibly a better way of it, if it could be up scaled and operationalised. Vulnerability on the other hand should not be thrown away but also presents a way of looking at the dimensions that prevent positive socio-ecological progress from occurring. It is thus possible to look at ways in which the two terms can be worked towards convergence and be utilised to solve the world's problems. The convergence of the two terms is supported in literature in Chapter 3 section 7 and by Fushs and Thaler (2018:3) who argue that resilience and vulnerability represent two related yet different ways to understand the response of systems and actors to natural hazards. The broad concepts in their usage by scholars have been wide and also multi-disciplinary. Vulnerability, when defined broadly refers to a potential for loss, and encompasses elements of exposure, sensitivity and coping. Resilience refers to the capacities of entities, which goes beyond coping with hazards, but also the longer-term adjustment and learning processes to adapt to future threats. Modica and Zoboli (2016:60) and as argued in Chapter 3 section 7 are

more simplistic and describe vulnerability as inherent characteristics of a system that create the potential for harm but are independent of the probabilistic risk of occurrence of any particular hazard or extreme event while they look at resilience in three ways which are: (i) the ability of a system to recover after a shock; (ii) the amount of shock that a system is able to absorb; and (iii) the ability of a system to adapt so as to minimise the extent of disturbances affecting the system. Finally, Bergstrand et al (2015:405) and the conclusion of Chapter 3 section 7 agree that in as much as vulnerability and resilience are mutually related notions, they ought to be considered as discrete concepts and assessing both can help circumscribe unique situations in regard to hazards, possibly aiding policy makers in addressing deficiencies and enhancing the overall potential to withstand and overcome these perils. The researcher agrees with resilience scholars that resilience should be treated as neither good nor bad, but rather as having a neutral value.

6.2.1.2 Previous attempts to measure resilience applicable to Somalia

The results showed that in general there was confusion in what was entailed in measuring resilience especially at the household level and from the respondents' point of view as shown by the results in Chapter 5 section 2. This is not surprising as literature has shown that measuring resilience is still a highly contested field as argued by Carpenter, Walker & Anderies (2001:777) and in Chapter 3 section 12 respectively. Again, the resilience concept while old in origin is still relatively new in Somalia. Added, there is still very little understanding of resilience building at the household level, which brings into question the level of consultation and the participation of the affected population and their stakeholders in designs of the projects that are implemented in their locations. Biggs, Schlüter and Schoon (2015:204) and Chapter 3 section 10 agree that "involving a diversity of stakeholders in the management of socio-ecological systems can help build resilience by improving legitimacy, expanding the depth and diversity of knowledge, and helping detect and interpret perturbations". At the level of the implementers however there were a plethora of measures that had been used to measure resilience, which signifies the lack of

agreement on a universal measure of resilience as discussed in Chapter 3 section 13. In most instances the measures were the ordinary project evaluation procedures that were devoid of resilience metrics or were high-level econometric measures that needed to be computed over time and were rather complicated by the inclusion of panel data as well. These two extremes were observed with the UN organisation as (see KII in Chapter 5 section 4.2) more rooted on the later but the inclination to develop simpler ways to measure resilience was also observed among several organisations that were implementing resilience projects. While the use of metric to measure can be viewed as cumbersome, complicated and requiring highly specialised staff, it did produce plausible data for measuring resilience as compared to the normal monitoring data that was collected by some organisations. There is a danger that most organisations are not strictly measuring resilience but rather just meeting the donor requirement of monitoring and evaluating their projects leaving the people they purport to serve at the mercy of the vagaries of the anthropocene.

There is more work that should be undertaken to come up with a plausible way to measure resilience especially in face of the increasing funding and acceptability of the concept as a game changer in humanitarian situations. There is again a need to simplify measurement as the current methods that are offering promise and more accuracy have the drawback of being rather too metric oriented to be understood by most implementing agencies let alone be more useful for short term programmes that characterise the humanitarian environment. These methods are also divorced from the individuals affected, as they do not understand the computations that are used and the algorithms that result to determine resilience, or what it means to be resilient. The development of people friendly methods is thus more important and should be pursued with the participation of the local population. This is how the case for the subjective measures shows some strength as compared to other measures as it gives a strong perspective of the subject and their definition of being resilient. While developing new metrics to measure resilience caution needs to be taken and lessons drawn from previous experiences in the Horn of Africa. Levine and Mosel

(2014:17) give examples of the "2000 UN strategy for 'the elimination of food insecurity in the Horn of Africa', which did not meet its objectives", the 2011 Inter-Agency Plan of Action for the Horn of Africa or the 2012 Supporting Horn of Africa Resilience as some of the parameters that could have been used to benchmark the recent resilience initiatives. They argue that what has happened is rather rebranding food security as resilience while on another note it "has had very positive effects in creating a new and much wider political and aid coalition" (Levine and Mosel 2014:17).

6.2.1.3 Validity of measures on resilience measurement

The results on Chapter 4 section 4.3 of this research showed that the validity of the resilience measures is far from being acceptable. While validity is defined "as the degree to which the test measures what it purports to measure" (Brown 2010:37), Sartori and Pasini (2006:360) as discussed in Chapter 3 section 12 argue that the commonly used criterion is the *Trinitarian Model*, which provides the combined assessment of content validity, criterion-related validity and construct validity into a unitary analysis of content validity. Inevitably validity is an evolving property and validation is a continuing process (Messick 1987:1) as discussed in Chapter 3 section 12. Linking the above to this study, the focus of a measure of resilience in the context of projects being implemented in Somalia is to determine the attainment of certain parameters of resilience that can be directly attributed to the activities implemented. In this study it was demonstrated that most of the respondents did not feel that they had attained resilience or were on a path of achieving the same. The results from the University of Tulane on a resilience building project in Luuq showed that there was some improvement in the resilience of the beneficiaries. While these cannot be directly superimposed on the same respondents of this research, the results of this research do not seem to agree with the University of Tulane results. What therefore comes to the fore is that when assessing respondents on their resilience, the objects used in the test must be familiar to all participating households, implying that there might be need, to define resilience across all the locations and in the local language for

standardisation and ensuring that there is uniform understanding of what exactly is being built or measured.

The ability of a measure of resilience to give a valid measure is very debatable. This research showed that there was a belief that while resilience was being measured the ability to provide a valid form of measure was still distant. Users did not trust the use of highly metric methods of measurement while laborious and highly objective in their approach. Perhaps the problem lies in the framing of resilience and the notion of which should come first, especially when the definition and the operationalisation of the resilience concept is still problematic. While there is proliferation of resilience building measures the results in this study indicated that more needed to be done to be fully compliant to the desires of measuring something. The current measures not only fall short on effectiveness but also on relevance as most have been a case of adaptation of the normal tools of measuring any other product as compared to them being more specific to resilience. The development of such methods is the concern of a number of scientists across the world, notably the University of Tulane and the Swedish Resilience Centre. The thrust of these developments will not only help to understand the attainment of resilience but will also lead to implementers to have areas of focus to make resilience building more effective.

6.2.1.4 Effectiveness and relevance of resilience measures in fragile context

The results indicated that the relevance and effectiveness of resilience measures was highly location dependent as shown in Chapter 5 section 4.4. There were differences depending on the location of the respondents, which suggest that the opinions could be linked to the security of the locations. This trend was exhibited with other projects whose influence was affected by external factors such as the security situation in the context of Somalia. The situation in Somalia is complicated and has been like so for a long time signalling that it is not about to change. As such, it is important that in implementing resilience building measures there is incorporation of governance structures within the present

context of Somalia that can respond to monitoring information that can lead to informed decisions on avoiding regime shifts that can threaten ecosystem services.

There is paucity of information on effectiveness and relevance of resilience measures as very minimum research work has been done to examine this phenomenon on resilience. Parsons et al (2016:11) as discussed in Chapter 3 section 12 put it "the practice of resilience assessment is entering what will be a multi-decadal phase of diverse and reflective advancement". The study also suffered from a lack of an agreed and applicable criteria of what embodies effective and relevant resilience contra to which these attempts could have been triangulated "given that it refers to complex interactions between individuals, households and their environments" (Jones, Samman & Vinck 2018:9) as discussed in Chapter 3 section 13. The literature review has demonstrated that while most of the methods can somewhat measure the increase of resilience, in the case of Somalia and most of the fragile contexts it is difficult to attribute a change in whole or in part to a specific intervention. The University of Tulane study addresses the role of humanitarian assistance in recovery after a disaster and offers some insight into a more direct measure through a qualitative enquiry. This is in contrast with most methodologies as mentioned before that employ a variety of statistical and other methods including cluster analysis, statistical modelling, factor analysis, principal component analysis and factor analysis. Some of which require specialist skills that are not readily available within project contexts (Brooks, Aure & Whiteside 2014:21 and Chapter 3 section 12). Douxchamps et al (2017:18) conclude that the resilience measurement "tools are relatively new, their indicator structures remain embedded in classical sustainability and development approaches, simply adding a resilience lens to previous tools and recycling indicators". The literature also revealed that at the conceptual foundations of the tools differ, and although some have benefited from recent understandings and theoretical developments, there is still some huge gaps to bridge the theoretical implementation plan and the actual practical application, mainly in relation to transformative capacity indicators. The FAO

SHARP tool demonstrates a true attempt to rethink resilience assessment, informed by academic theories developed in recent years. It is built on 13 characteristics of resilience that are cited most often in the literature on socio-ecological systems resilience (Heckelman, Smukler & Wittman 2018:228). These indicators identify behaviours that, when present, imply that the system is more capable of persisting and the absence or disappearance of these behaviours signals vulnerability in the agroecosystem and a need for intervention (Cabell & Oelofse 2012:10). FAO SHARP is household level climate resilience self-assessment tool that not only assess the households' current state of resilience to climate change, but also allows reflection on experiences, which then tailors interventions and actions aimed at increasing resilience. It therefore employs a holistic and comprehensive approach to resilience which allows for locally customised adaptation strategies (Choptiany et al 2015:24). The tool has a shorter timeline compared to some of the resilience frameworks and can be classified as largely subjective as all the questions are presented to the farmers and the pastoralist for self-assessments. The tool is also suitable for the Somalia context in that it is focuses on climate resilience and climate-related risks, which aligns with food insecurity, induced by drought and prevalent in Somalia (Choptiany et al 2015:99). In conclusion, there is need to move to a point where resilience practitioners measure what matters and move beyond what is measurable only. This entails developing in-depth understanding of how certain outcomes and facts can be translated in the decision-making arenas.

6.2.1.5 Fragile contexts and the understanding of resilience building

Fragility is affecting several countries across the world and it has been widely recognised that besides it being multi-dimensional its challenges are also universal. It is thus important to understand how resilience fares in the state of fragility. The results in Chapter 5.4.5 indicated that it was very difficult to achieve meaningful resilience building measures in fragile states especially when it is implemented with the same approach of stable states. The results clearly showed that for improved resilience there is merit in addressing fragility or the issues that have led to the country being a fragile state in the first place. The

results also indicate that besides addressing the causes of fragility there is need for unprecedented rates of progress to end poverty and increase the resilience of the population. These results therefore imply that the status quo in Somali in particular and in fragile states in general will greatly influence the pace of attainment of resilience. There is need for Somalia to move to a point of strong institutions and development for it to be able to catch up with the other countries and move on a path of achieving resilience for the households. The current funding modalities in fragile contexts falls short of adequate as they address mainly the immediate needs and can best be described as firefighting rather than supporting long-term structural changes. Again, besides addressing both fragility and resilience in the same approach there is also need, to look at innovative ways of achieving resilience within the same fragile contexts that can work in these circumstances. This calls for novel innovations and the capacity to transform which is necessary to thrive in the face of uncertainty and change. This calls for inclusive, disruptive, socio-ecological innovations that challenge the traditional places for innovation and channels for knowledge transfer; disrupt the system that created the problems in the first place and radically change the status quo. In the case of fragile states, resilience innovation needs to be more participatory and include all the players in the context regardless of whether they have been labelled spoilers before and challenge the fundamentals of fragility for resilience to take root.

The results from this thesis resonate with those of the OECD which indicated that while humanitarian aid in Somalia was mainly going where it was needed most, there were negative perceptions that included, security issues that hinder targeting and hampered aid delivery to hard-to-reach areas. Secondly, corruption and unfair allocation of aid due to the lack of control over gatekeepers and partners was also a huge challenge. This was exacerbated by limited accountability, monitoring and coordination mechanisms. Thirdly, high operational costs and bureaucracy ate up a significant amount of funding (OECD 2017:18) as discussed in Chapter 2 section 4. The results also underline some of the important principles of resilience building that should be considered that

include the need to understand that the system is complex. In doing so the implementers need to look at the complexity of the fragile context states and include this in their planning. Fourthly, there is need to understand the role of polycentric governance as a way of strengthening the resilience of the households and the communities. In building polycentric governance, the humanitarian players ought to create strong institutions, which are not necessarily connected with government in the case of fragile contexts but nonetheless have the ability of interaction through rules so that challenges are swiftly addressed. This will include in the context of Somalia the incorporation into governance structures coalitions of business groups, traditional authorities, religious leaders, clan leaders, civic, youth and women groups. The incorporation of these players including their participation in governance issues will provide opportunities for knowledge consolidation; expand participation; improve connectivity; create modularity; improve potential for response diversity and build redundancy that can minimise and correct errors in governance. The mere fact that they would have been brought together should overweigh the issues of whether they will be able to coagulate and work as a unit but what is more important is for the different groups to be able to provide some checks and balances over each other which will strengthen the ideals mentioned above.

6.2.1.6 Improvements that need to be made to the current resilience measurement methods

Improvements to the measurement of resilience did not appear to be on the top of the ladder of the priorities of the humanitarian agents and the respondents as shown by the results in Chapter 5 section 4.6. This was rather surprising considering that resilience measures have not been fully agreed on and there is a myriad of methods to measure the same. While most of the respondents might not have seen many problems with the methods that had been implemented, the expectation was that the implementers would have wanted to improve due to the demand for accuracy and improved implementation and programming. This rather unusual result might be influenced by the complex measurements that are currently being implemented that present humanitarian agencies with metrics that

are much difficult to understand for them, the donors and other interested parties. The other possibility might lie in a lack of incentive to change due to complications of new systems and the cost of training new personnel in new methods, which might not necessarily apply for other programmes but are only relevant for resilience building activities. This could be solved by looking at possibilities of embedding resilience components in all other programmes that are being implemented so that there is convergence in programming. Some of the glaring improvements that need to be made in resilience measurement include the need for high quality data that is collected at frequent intervals because assessing and understanding the impacts of shocks and external interventions requires recent pre-shock baselines. The data needs to be clearly focused on a household or individual level causes and consequences of shocks and stressors. While the situation in fragile states in general and Somalia in particular presents challenges the capacity to collect data can be enhanced using mobile tools and the latest technologies that are efficient and easy to use even in the poorest locations and can be useful for nomadic pastoralists as is the case in Somalia. The second component that can be deduced from the results is that the trend for using mixed methods approaches needs to be scaled up. This might involve spending time with communities to understand hazards, assets and resources, security threats, intra-conflicts sources and vulnerabilities and capacities sources. This participatory process will lead to the development of locally adapted resilience understandings that are rooted on the attributes of each location (town, rural or IDP camp). When these have been built, the measurement process will then involve the collection of both quantitative and qualitative at the individual, household and community levels. This will also include collecting information about the wider 'enabling environment' including governance, security and environment. The third component to improve resilience measurement will be to include within the measurement framework an understanding or accommodation of the issues of power, politics, equity, and marginalisation as these have a marked influence on the resilience of a household.

6.2.2 Subjective measures of resilience

The last key finding on Chapter 5 section 5 of the results is that while the context of Luuq is complex and very difficult, the use of subjective measures of resilience remains one of the strongest methods to gather information as opposed to the other methods that have been used in some locations and instances. The results from this research came out of a measure of resilience through a household self-assessment on three capacities; which were to; prepare, recover and change. This research provided an opportunity to capture concerned individuals and households' perspectives of their resilience. The results showed that most households were not resilient since they were not prepared for future disasters (90.5%), were not able to recover within a reasonable period (70%) if a disaster were to strike and did not have the capacity to adapt as well (86.1%). The subjective questions that were administered to the respondents showed a lot of promise to measuring resilience in the Somali context as the questions were simple to ask, understand, implement and analyse. This is taken with the evidence of strong precedents that have been set in the use of subjective measures in the psychological resilience discipline including related wellbeing studies which prove that psychometrically ratified subjective systems can be used effectively to triangulate with objective computations, provide accurate prediction of objective wellbeing outcomes and could potentially lead to valid cross-cultural comparisons. This however should be taken on the backdrop that resilience itself is a complicated phenomenon to measure and as such simplified measurements have their fair share of criticisms. It should be noted as well that this measurement was very specific to Luuq and there is still a long way to go to come up with questions that can accurate measure the capacities that were presented in this thesis. The results however show that subjective measurement of resilience challenges a number of assumptions from the traditional objective ways of measuring resilience to the resilience theory and, also extend to include associations between resilience, gender and poverty and other related issues such as the sustainable livelihoods assets. The results show that despite the promise of good measurement offered by a subjective approach, more work

needs to be done to establish and explain these trends and establish their drivers. This however shows that in the context of the fragile contexts or in similar contexts the use of subjective measures offers an alternative route especially where it is difficult to give accurate metrics. There is however need, to conduct comparison studies on both the objective and the subjective measures so as to come with more concrete conclusions on the accuracy of measures. This however does not negate the fact that the human beings possess a more profound appreciation of their resilience, which cannot be accurately represented by a metric. It is agreed that subjectivity in the measurement of resilience in the development and climate field is in infancy and that it is paramount that key uncertainties must be addressed before policy makers and programmers can adopt this approach widely. As more clarity is brought in this area, there is need for scholars to look at the structuring of questions of subjective resilience for inclusion in longitudinal studies where possible ensuring that there is a good fit with the objective measures. In so doing this will test their predictive value and allow for a focus on the "resilience standards against which respondents are required to compare themselves" (Clare et al 2017:21).

6.3 EMPIRICAL FINDINGS

The main empirical findings are distributed across the thesis with the majority of them in Chapter Three (Literature Review) and Chapter Five (Presentation of Results). This section will synthesise the empirical findings based on the objectives of the thesis and the research questions as stated in the introduction of this chapter.

a. Resilience and vulnerability are different but complementary terms: To be more effective in changing the paradigm from vulnerability to resilience both are useful terms to understand the other. Vulnerability is the inherent characteristics of a system that create the potential for harm and can influence the extent to which a system can be resilient while resilience is the ability to turn those characteristics into an ability to persist and not lose traction of the development trajectory. As such the two terms

complement each other and an understanding of both terms will make systems to be more prepared of the vagaries of the anthropocene.

b. A lot of attempts have been made to measure resilience at the household level, in fragile contexts and in Somalia in particular, of these methods the FAO SHARP method appears to be closer to usefulness and accuracy: The SHARP method is a self-assessment and participatory tool designed to increase the understanding of climate resilience of pastoralists and farmers. The results collected are then used to inform a training curriculum, monitor the attainment of resilience and "contribute to policies necessary to improve climate resilience" (Choptiany et al 2015:2). It takes care of the recent academic thinking of resilience and includes some components of subjectivity in its approach.
c. The measures of resilience in fragile contexts have met with mixed successes and failures: The measures have been varied depending on what each organisation attempts to measure. As such what has been reported by the organisations as success in measuring resilience is not much different from the same ways the organisations have measured any other projects regardless of whether they are resilience building or not. There have been some successes with high frequency panel data but this has had limitations in application especially in fragile contexts and insecure environments and instances where people are not sedentary.
d. The methods that have been used to measure resilience in Somalia and in fragile contexts in general have not been effective and relevant to the context and to the Somali context in particular mainly because they are not designed for a fragile context and fail to take into consideration the unique nature of these contexts to be more useful and accurate.
e. The context of a location is important to understand the construct of resilience and this is even more so in fragile contexts which are unique in that they do not meet some of the assumptions of building resilience that have been put in scholarship: Somalia presents security and frequency of climatic shocks as some of the major challenges that need to be put into

perspective if people are to be resilient. The issue of security is even more problematic as it has been part of the context for a long time and there is probably a need for an agreement on whether security continues to be treated as the shock or as part of the status quo.

f. The current methods of resilience measurement that are being employed in Somalia need to be refocused and made compliant to the fragile context. Recognition is growing that policymakers can achieve substantially better results by using rigorous evidence to inform decisions, enabling governments and humanitarian players to select, fund, and operate public programs more strategically. Through using evidence-based policymaking the best available research and information on program results, governments and humanitarian players can reduce wasteful spending, expand innovative programs and strengthen accountability.
g. There is a potential for subjective measures of resilience in fragile contexts: The research presented in this thesis collected data on household's perceptions of three capacities: preparation, recovery and adaption to food insecurity. The work presented in this thesis suggests that the subjective approach is possibly a promising tool although it is however at this stage far from being broad or exhaustive.

6.4 THEORETICAL IMPLICATIONS

The theoretical cases for resilience have been justified and argued in the past driven by the increasing shocks and perturbations, effects and impacts of climate variability, the increasing number of poor and vulnerable people despite the billions of dollars that have been poured into humanitarian activities. There are a number of resilience building measures that are promising that need to be explored for human nature to survive in the anthropocene. These include persistency, adaptation and transformation and the later component needs to be revisited and explored in order to further understand the livelihood dynamics of the rural poor and how they can be made more sustainable to survive the new epoch.

Over the recent years the theoretical advances on resilience building now include a set of seven principles that have been identified for building resilience and sustaining ecosystem services in socio-ecological systems. The principles include maintaining diversity and redundancy, managing connectivity, managing slow variables and feedbacks, fostering complex adaptive systems thinking, encouraging learning, broadening participation, and promoting polycentric governance systems (Biggs, Colding & Folke 2015:204) as in Chapter 3 section 11. However, theoretical conceptualisation of this area and methodological approaches for researching socio-ecological systems are still relatively underdeveloped. The available research has been carried out in developed countries, where the issues and contexts often differ dramatically from those in the fragile context and the developing world. While there are abundant examples on how to persist in the face of perturbation and also to adapt to changing conditions there is still a lot of theoretical work that needs to be done to simplify how households and communities can transform and become more resilient. The theoretical consideration is now very strong in arguing that transformation is now the necessary component of resilience in the anthropocene however there is still more work that needs to be done to unpack how transformation looks like and entails in the fragile context and the Global South.

The resilience approach is based on the understanding of socio-ecological systems as explained by the adaptive cycle theory, the panarchy metamodel, and the stability landscapes. This research has agreed and taken into questions some of the concepts on which the resilience approach is built. This is mainly because the challenge with the fragile context in general and the Somalia context in particular, is how to build resilience in a state in which the central government has limited power and capacity and relies on a diverse range of local authorities to execute core functions of government and mediate relations between local communities and the state. This therefore creates some misalignments with some of the assumptions and theories that seek to explain the rise and fall of resilience in the face of disturbances. In building resilience in the Somalia context as explained by the metamodel of the adaptive capacity discussed in Chapter 3

section 3, it is expected that the first stage after a crisis, perturbation or shock will be growth through amassing readily available resources resulting in an accumulation of structure, and high resilience. This situation is hardly recognisable in Somalia as the population has faced crisis after crisis to the extent that the population is not able to build the asset base. The Somali households are thus more likely to move to a poverty trap as the "system cannot access enough activation energy to reach a state where positive feedbacks drive growth internally" (Fath, Dean & Katzmair 2015:3). The second phase (the conservation) is thus one in which net growth slows and the system becomes increasingly interconnected, less flexible, and more vulnerable to external disturbances (Walker et al 2006:2). Looking at the Somalia context again, this phase is hardly reached by most of the households, as it assumes a certain level of resources that would have been accumulated. The metamodel also characterises the period after a disturbance as a window of opportunity in which new actions and arrangements are possible. This can only happen when there are different forms of capital that can be amassed for the development of new trajectories and these are informed mainly by remnant capital from which communities can draw from. The situation in Somalia is however of limited capital or rather when there is some capital remaining after a perturbation this is usually disposed of making the household even more vulnerable. This prevents the recovery stage from being an opportunity to create new positive trajectories that lead to increased resilience. The situation is different though with anticipation and learning which are very important and practical pillars of resilience as individual households have the capacity to learn from experience, can have access to early warning systems and would most likely react to shocks despite the limitations they have. In most instances the drought perturbations in Somalia are so large that they cannot be absorbed by the system and the configurations become disordered. As such the four phases of the adaptive cycle loses sequence even though they appear to still explain the dynamics of change in many systems. This is strongly illustrated by the drought years of 2004, 2005, 2008, 2010, 2012, and 2016 in which the system experienced a perturbation which led to decline without

giving the same system enough time to reorganise and recover. In this thesis and as postulated by Fath, Dean and Katzmair (2015:2) the assumption is that resilience compounds “the capacity to successfully navigate all” four phases of the adaptive cycle (growth, equilibrium, collapse and reorientation). As such, while the adaptive cycle theory does hold for Somalia, it takes the households to the poverty trap scenario as explained above. The research does agree with Abel, Cumming and Anderies (2006:21) that investment in the capitals is the way to enable reorganisation, and this is well understood by many international aid agencies, even though political pressures and security concerns have been shown by the results to over promote immediate relief rather than capital investment. While drought does trigger livelihood crises, the underlying drivers of vulnerability in Somalia are also social and political (Majid & McDowell 2012:2). On the other hand the stability landscape metamodel discussed in Chapter 3 section 5 when used to explain resilience in the context of Somalia does agree that both exogenous (climatic conditions) and endogenous drivers (vulnerability) could have contributed to the loss of resilience through increasing the strengths and number of the positive feedbacks creating the likelihood of the system moving to a new basin of attraction given some perturbation. The people in Somalia thus exist in shallow basins of attraction meaning that smaller influences are required to change the current state of the system away from the attractor which is worse off than their current. The stability landscape model is thus a good model to explain the resilience of the people in Somalia and it most cases they breach the threshold which makes recovery difficult or impossible without the help from outside the system. The results have shown that in as much as the adaptive cycle offers one potential starting point for unifying ideas about resilience and collapse, it describes an archetypal system dynamic of growth, rigidity, release, and reorganisation. The potential for novelty after a perturbation is also questionable in the context of Somalia, as there is hardly any evidence of what can be referred to as “novelty” in the context of Somalia unless survival mechanisms such as migration, dependence of remittances, and selling of productive assets could be described as such. The research thus agrees with

some scholars such as (Folke 2006:258; Salvia & Quaranta 2015:11117) that the adaptive cycle is a general heuristic model that shows how a tension between efficiency and adaptability, can result in dynamic changes that lead to collapse. It is not a clearly specified mechanistic model and in its current form it is nearly impossible to test empirically (Cumming & Peterson 2017:709).

6.5 POLICY IMPLICATIONS

The impact to policy of this study is that there is need to change the way the resilience narrative is presented through combining humanitarian and development efforts so that communities transition from being recipients of emergency relief to having the capacity to prepare for and withstand the inevitable shocks they face. The projects and programmes that have been implemented are indeed helping to make the case for smart investments in resilience and as such there is need to continue getting people ahead of shocks and stay on the pathway to development. On the donor side there is the argument that a profound resilience building approach and scenario reduces the net cost of humanitarian responses by over US$1,6 billion in 15 years. This is because international best practice has shown that the most effective recovery strategies work across the humanitarian-recovery-development nexus and take a multi-partner, multi-sector, integrated approach that combines humanitarian, recovery and resilience building interventions to meet immediate humanitarian needs, strengthen livelihoods, and build resilience to future disasters. Somalia presents a challenge in that the government infrastructure is weak and as such the policy frameworks and policy development initiatives are not effective. The country thus presents an exception where any recommendation on policy might not have traction, as there is no fully functioning and acceptable government and the presence of spoilers. Nonetheless this implies that policy implications need to be devolved to the lower levels such as the clan leadership that have shown to have more impact as compared to central government.

This thesis has shown that there is a linkage between food insecurity and conflict in Somalia and that some researchers (Maystadt & Ecker 2014:1168) as

discussed in Chapter 2 section 5 have shown that a rise in temperature aberrations and drought lengths is directly linked to an increase in conflict likelihood. As such there is need to recognise the link between conflict and resilience so as to design and implement projects that truly improve people's resilience. While Somalia has limited options due to incapacitation of the government, there are feasible immediate to medium-term resilience building options that may be pursued that include livestock market functionality improvements, integration and diversification of the Somalia's meat value chain system, opening up of micro credit and micro insurance schemes, technical and financial support to pastoralists and agriculturalists to acquire more drought-tolerant and earlier maturing livestock and crops that are more adapted to the changing climatic conditions.

Somalia has taken some steps towards normalisation of the government through the election of Somalia's parliament in December 2016 and President in February 2017. These were important milestones for the country's post-conflict transformation and provided opportunities to accelerate progress on national priorities building state institutions and local governments. While there have been these positives, several factors continue to jeopardise the humanitarian and social situation in Somalia. These include insecurity and Al Shabaab presence, limited presence and capacities of government institutions, limited access by humanitarian and development actors, limited livelihood opportunities and low levels of investment in early recovery and development (UNHCR 2017:6; Chapter 2 section 4 in literature). This thesis has demonstrated that meeting development and humanitarian challenges in the face of social, political, and financial uncertainties and increasing global environmental risks and interacting social, economic and ecological shocks requires new approaches to development. Furthermore, it is clear that development strategies that are viable under turbulent and novel global conditions are needed. The combination of rising risks and the recognition that sustainability is key to development has resulted in a rising interest in integrating resilience as a core strategy of development actions across multiple sectors, scales and regions. This thesis

contributes to tackling existing and emerging challenges in the developing world, primarily in the Horn of Africa. What has clearly come out of this study is that it is important to mainstream knowledge into policy and practice and incorporate experiences from policy and practice into scientific understanding, in order to have a tangible impact and effect change in the governance and management of socio-ecological systems in the region. From a policy perspective and the complications of the fragile context more simplified systems of traditional resource management could be advantageous in comparison with non-traditional techniques in the management of physical, social and biological dimensions of food security. The combination of political and social flexibility with traditional conservation policies that has been demonstrated by the Somalis has contributed to the region's socio-ecological resilience. Somalis and other nations in fragile contexts need to transform their resource management systems over time to meet the changing needs of their community so that the inherently complex and unpredictable socio-ecological systems can be best viewed from a co-evolutionary perspective. In the empirical case examined, while strategic spatial planning is an activity led by government, this is not necessarily the status quo in fragile states due to incapacity of the governments. This does not however negate the role of the state in determining how linked socio-ecological systems are thus governed. The significance of this understanding brings into the fore the importance of building strong state structures that can drive policy agendas and facilitate the governability of linked socio-ecological systems. This thesis shows that in as much as the role of the state significantly affects the capacity to govern for socio-ecological resilience, it is important for future resilience scholarship to pay more attention to what needs to be done in spaces that the state is not strong. This includes the innovative policy technologies required to support the strengthening of governance consistent with some of the underlying assumptions of socio-ecological resilience. “Part of the problem with the application of resilience theory is that it is difficult to translate fluid concepts into law, as there are aspects of socio-ecological resilience that are not directly observable” (Carpenter, Walker & Anderies 2005:765) and discussed in Chapter 2 section 4.

While the setup of a new government is plausible, previous efforts have resulted in governments that have very little influence outside the capital Mogadishu. The systems that seem to operate is some form of patchwork quilt of governmental systems that have forced people respond to collective problems without the government. In many parts of the country, society has organised itself to effectively solve collective problems and provide public goods. This research thus implies including these groups and collectives in policy implementation especially in areas where they have more influence compared to the central government.

The last policy implication of the results of this thesis is that adopting resilience as a benchmark as a policy design strategy means bridging the usual chasm between lifesaving and development interventions. In general, an adoption of a resilience-based policy design implies power dispossession from policy makers who desire to maintain the status quo by preventing system change in assumed stable systems, to those that seek to manage change by enhancing the capacity of socio-ecological systems to cope with, adapt to, and shape change. This means being clear about the various humanitarian and development interventions including the different implications of resilience-focused interventions for the different actors and groups that are targeted and thereby creating development interventions and policies which do not enhance resilience at the expense of wellbeing. The recent progress towards a better conceptual understanding of resilience needs to be complemented by similar efforts in getting better at implementing, measuring and monitoring resilience in ways that are most relevant to development objectives and to poverty alleviation.

6.6 CONTRIBUTION OF THE STUDY

The previous two sections dealt with the theoretical and the policy implications of this study. This section is brief and discusses some of the points that have been raised but gives a summarised version of the contribution of this study to scholarship. This section is assessed using criteria formulated by Whetten (1989:492). This study has demonstrated that the theoretical understanding of

resilience is brought into question in fragile contexts and that the application of resilience in these settings needs to follow different guidelines that are mentioned in the paragraphs that follow.

In building resilience in Somalia it is important that there is a focus on building capitals through a pronged approach of both humanitarian and development approaches. The approach to humanitarian aid in Somalia has mainly followed a continuum approach yet the complexities of the country call for a shift to a contiguum approach. The contiguum will be beneficial to Somalia as it allows both humanitarian and development aid to work simultaneously within the same context.

The data and the plethora of definitions including the lack of agreement between some theoretical assumptions of resilience, it is important that agencies and donors accept that not everything is resilience building. In some instances where even the remote definition can be put there is need to accept that resilience-building according to the definition adopted in this thesis as transition through absorptive, adaptive, and transformative may not be realistic in some locations of Somalia in the medium to long-term. This problem does not negate the obviously humanitarian interventions that are being conducted by various agencies but merely questions their being defined as ‘resilience’.

As a means of improving measurement of resilience, this a continuing chapter as more information continues to be generated, however it is critical that such information is generated inside Somalia through collaboration among agencies and involvement of the local population including putting a strategy to learn, promoting transformative and longer-term information systems, and having more structured coordination among stakeholders.

There is also need to clearly distinguish resilience and stabilisation strategies and programmes for greater efficiency and clarity for the local communities, the agencies and the donors. The two agendas can occur at the same place as long as donors are able to improve in delineating and demarcating their respective perimeters. The current set up where there is over promotion of immediate relief

rather than capital investments will need to be uplifted to a point where both relief and development are pursued at the same time.

The results of this thesis did not validate the point that a resilience building approach reduces the cost as this assumption is based on the continuum approach, with the argument the approach in Somalia needs to be unique and follow the contiguum approach, this assumption thus thrown open.

The study also shows that in fragile context the reliance on government in making policy can be grossly overstated and as such it is important that policy decisions and implications are devolved to the lower levels.

6.7 RECOMMENDATIONS FOR FUTURE RESEARCH

This research sought to elucidate the resilience concept from a fragile context perspective but as with any other research it was not able to pursue all the avenues that were opened. This thesis thus suggests several promising avenues for future research that remain unanswered by this work but also offer a better understanding of the resilience concept in the anthropocene.

In subjective measurement of resilience, there is need, to further consolidate and test the subjective measures without discarding the objective measures, but as a way of finding complementarity. The objective would be to not only bring in simplicity but also ensure that there is accuracy in these measures and they also function as a way of triangulating the objective measures. Indeed, this will require a lot of work to ensure that the results become valid cross-nationally and are comparable.

While resilience and gender were explored to some extent in the study, there is still a lot more work that needs to be done so as to explore the relationship between gender and resilience as inequality of all kinds, including gender inequality, is a hallmark of development in the anthropocene and this has had, as we can see, fairly catastrophic social and environmental consequences. There is increasing social inequality and increasing environmental imbalances and these two things cannot be separated from each other. There is research (Norgaard &

York 2005:508; Leach 1992:13; Sharma 1994:8; Qureshi et al 2008:885) that shows that if there is greater gender equality aside from leading to a better life for all, it also leads to better environmental decision-making and greater well-being outcomes for societies.

The findings from this study indicate the need to better measure the resilience capacities of aspirations and governance. There is need to explore the aspirations questions more explicitly in the context of decisions that affect household resilience capacities or outcomes, particularly in contexts like Somalia where decades of instability combined with traditional beliefs have influenced the population's sense of individual power. The results indicated that there was a lot of recognition of clan and community leadership structures and these proved to be important in mobilising for resilience as shown by the strengths of saving schemes that are administered at the community level and their mobilisation round shocks.

6.8 CONCLUSION

The concept of resilience offers some promise in a world where human nature has begun having a profound effect on the earth. The concept however has been with us for several years beginning in child psychology and ecological systems in the 1970s but has gained traction in the recent years as a replacement for sustainable development and other approaches that have shaped the humanitarian and development sectors. The concept has been defined differently depending on the actors but there has been a convergence of ideas among a huge number of scholars that it should be referenced around the terms persistence, adaptation and transformation. Vulnerability and resilience are two terms that complement each other and are important in understanding the other. The measurement of the attainment of resilience has also met the same fate as the definition, there are a number of frameworks that have been proposed and implemented around the world by different players, who are either NGOs, academic institutions, development organisation or international organisations.

Previous attempts to measure resilience in Somalia were met with confusion and

lack of agreement on what it entailed to measure resilience. This is across all the players and in most instances the project evaluations appeared more inclined towards the normal monitoring and evaluation procedures that were devoid of specific measures of resilience that lead to a more accurate and informative measure on the attainment of resilience or lack of it.

The validity of resilience measures is still far from being acceptable as the results from the activities being implemented could not be directly attributed to the resilience building activities. The households when questioned were quick to point that they did not feel resilient at all. As such what is important is that there is need to align the aspirations of the affected populations with those of the implemented projects so that there is a universal understanding of what the project aims to achieve.

The effectiveness and relevance of resilience measures in Somalia appeared to be dependent on location with different households reporting different experiences with resilience building activities depending on their location. This showed that other factors such as social and economic issues have a large bearing on the resilience of households and could potentially impact the level of resilience that households have or are able to build if they are not taken into consideration in the design of project and activities.

The concept becomes even more complicated when it is taken to the fragile contexts where most of the fundamentals that need to be fulfilled for measuring it are absent and there are other factors that complicate both the accuracy of the measurement. The fragile contexts are however on the rise in the planet and resilience building measures need to be improved in these settings. There is need to develop tools for measuring all the components of resilience including the evasive transformative resilience that are specific to these contexts so as to ensure that the people in these contexts participate, are rightly saved and become more resilient to the slow and rapid changing environments that they face every day.

The results indicated that there was very little appetite from the implementers to

improve the measurement of resilience maybe due to the costs and complications surrounding the current available methods of measure. Mixed method research, participation and subjective measures are some of the improvements that could be added on improving the measurement of resilience in fragile contexts.

The use of subjectivity to measure resilience offers a promise as one of the better ways of measuring resilience and often gives a faster way to understanding the progress of resilience building measures and gives feedback so that corrective measures can be taken rapidly and efficiently. There is however more work that needs to be done to make this more accurate, more robust and readily accepted by the myriad of players that are currently operating in these contexts.

The theoretical reading of resilience is important in the understanding of resilience in Somalia even though it does not fully conform. It is fully understood that the sequential phases of the adaptive capacity model donor necessarily apply in Somali but do offer a significant way of understanding resilience building in this context. On the other hand, the stability landscape model seems to proffer a detailed description and understanding of the situation in which households find themselves in especially when one looks at how they end up in a poverty trap.

While in 2016 and 2017 the conflict in Syria continued to overshadow the Somalia crises, it still remained among the top recipients of humanitarian aid in Africa after South Sudan and Ethiopia. The understanding that disasters triggered by weather patterns are often predictable, has called for early financing to support early action since the fatally late response to the 2011 drought in the Horn of Africa. The donors and agencies committed to a resilience approach to the recurrent crises which resulted in several initiatives that brought together development and humanitarian financing to build resilience to the impact of drought. The trend to support resilience building measures has continued in 2018 as evidenced by further commitments by The Federal Government of Somalia, the United Kingdom, OCHA and representatives of the European Union, UN

Agencies, international organisations and non-governmental organisations to support the gains of resilience building gains of 2017 though noting that they remained fragile and needed to be protected and enhanced. The donors have also continued to support efforts that build resilience and long-term recovery through emphasising activities that address structural causes of vulnerability and in turn address drought and famine.

Throughout this thesis it has emerged that there still is a lot to comprehend in relation to how households in fragile contexts attain and maintain resilience to shocks. The knowledge gaps about resilience are pointed out throughout the thesis and explicitly drawn out in this concluding chapter, as are policy and programmatic recommendations that can make resilience interventions have more impact.

The title of this thesis is “Measuring Resilience in Somalia: An Empirical Approach”. As the title suggests, the journey of this research was to interrogate the ways of measuring resilience in a context such as Somalia which is characterised by elements of fragility. The title also meant to come up with recommendations on an empirical method or methods that could be used to measure this concept in this context. Since empirical denotes a sensory experience, which is mainly driven particularly by observation and documentation of patterns and behaviour through experimentation, this thesis has thus fulfilled the title in the ways that are described in the following paragraph. Firstly, the research has demonstrated that measuring resilience in Somalia should take into consideration the elements of fragility that are present, and these should be embedded in a measuring instrument for the results to be meaningful. The humanitarian agents have an obligation to not only use resilience as a resource mobilisation and allocation mechanism but to also implement activities that build effective resilience to the population. The theory of resilience does hold in Somalia and remains one of the important pillars of understand how to reduce vulnerability and increase the resilience of the population, but these should be fully understood and not applied on a one size fits all. The last component on the title of this thesis is that measuring resilience has many contestations and efforts

and each method that has been proposed has had its fair share of critics, but the quest for a unifying method remains. As such, this thesis recommends that there is need for researchers to incorporate elements of subjectivity in measurements as preliminary evaluations of these have proved helpful in a context such as Somali where objective measures are difficult to implement.

As the planet moves more into an uncertain future where the need for preparation and prediction of shocks and perturbations will become urgent, the need to anticipate, prepare and respond to these perturbations and shocks, and devise strategies that ensure resilient food security systems, agricultural and livelihood systems, institutions and policies at all levels also become urgent. The anticipated increase of the number of fragile context countries including the populations that live in them also bring the importance of the understanding how resilience works in these contexts are also paramount. The researcher hopes that this thesis will contribute to the work that is currently underway around the world to define, measure, and practically apply a resilience framework to humanitarian and development initiatives, so that food and nutrition security for all is achieved in the anthropocene.

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APPENDICES

APPENDIX A: HOUSEHOLD QUESTIONNAIRE

SECTION A: To be completed before conducting the interview				
Questionnaire No.			**Date**	
Name of Interviewer				
SECTION B: RESPONDENT'S BIOGRAPHICAL DATA				
1	Location/Village	1. Luuq Rural	2. Luuq IDP	3. Luuq Town
2	Sex of respondent	1. Male		2. Female
3		2. 21 - 30		6.61 - 70
		3.31 - 40		7.70 or more
		4.41 - 50		
4	What is your current marital status?	1. Married		4. Widowed
		2. Single		5. Separated
		3. Divorced		
5	What is your present household resident status?	1. Resident		4. Internal migrant
		2. Internally Displaced		5. Other (specify) -------
		3. Returnee		
If answer to above is 1 then move to Question 9				
6	What is your place of origin?			
7	What is the duration of your stay at current place?	1. Less than 1 year		4. More than 5 years
		2. 1-2 years		
		3. 3-5 years		
8	What was your reason for movement from previous place of stay?	1. Insecurity		4. Water shortage
		2. Lack of jobs		5. Other (specify)-------
		3. Food shortage		
9	What was the last school you attended?	1. Madrassa		5. College
		2. Primary		6. University
		3. Secondary		7. Post University
		4. Apprenticeship		8. None
10	How many members in your household	1. None		4. 7-10

	you are aware of that have not been implemented in Luuq?	2. Very few	5. Yes a lot of them
		3. Not sure	
19	Do you think their way of measuring resilience is generating quality information?	1. Not at all	4. Enough in some instances
		2. Little information	5. Enough most instances
		3. Not sure	
SECTION E: SUCCESSES OF THE RESILIENCE MEASUREMENT PROCESSES			
20	Has there been any successes in measurement that have been shared with you or the community?	1. Not at all	4. Yes somewhat
		2. Very few	5. Yes a lot of them
		3. Not sure	
21	Do you think the NGO/s would repeat this measurement?	1. Not at all	4. I am sure they might repeat
		2. Maybe	5. I am absolutely certain they will repeat
		3. Not sure	
22	Are there any improvements that you may suggest to the way the NGOs measure the projects you mentioned above?	1. Not at all	4. A lot of improvements
		2. Few improvements	5. Total changes to the methods
		3. Not sure	
SECTION F: RELEVANCE AND EFFECTIVENESS OF RESILIENCE MEASUREMENT METHODS			
23	Do the measurements capture the all the relevant components of the resilience project?	1. Not at all	4. Yes somewhat
		2. Very few	5. Yes a lot of them
		3. Not sure	
24	Do the agents conducting the measures concerned about your welfare and how the projects have affected you?	1. Not at all	4. Yes somewhat
		2. Very little	5. Yes a lot concerned
		3. Not sure	
25	Do you believe the measurements meet the objectives that are explained to you by the evaluators?	1. Not at all	4. Yes somewhat
		2. Very little	5. Yes in most of the times
		3. Not sure	
SECTION G: THE CONTEXT - WHAT DIFFICULTIES ARE FACED			
26	Do you believe it is easy for NGOs to follow up on activities in Luuq?	1. Not at all	4. Easy in most times
		2. Somewhat easy	5. Easy in all times
		3. Not sure	
27	Do you believe there are any barriers that are faced by NGOs in Luuq	1. Not at all	4. Yes some of the times

		2. Maybe but to a low extent	5. Yes all the times
		3. Not sure	
28	Would you name such barriers?	1. Lack of infrastructure including communication	4. Interference of political & religious leaders
		2. Security or armed conflict	5. Divisions among the different clans
		3. Competition among humanitarian agencies	6. Other - *Specify*
29	Do you believe if the security was better they will improve on their delivery and follow up?	1. No not at all	4. Improve to a large extent
		2. Improve somewhat	5. Improve drastically
		3. Not sure	
SECTION H: IMPROVEMENTS TO THE MEASUREMENT			
30	Are there any improvements that you may suggest to the way the NGOs measure the projects you mentioned above?	1. Not at all	4. A lot of improvements
		2. Few improvements	5. Total changes to the methods
		3. Not sure	
31	Do you believe the NGOs are listening to the people on the ground to improve these measures?	1. Not at all	4. Listening most of the times
		2. Somewhat listening	5. Listening all the time
		3. Not sure	
32	Do you think they are willing to improve if corrected	1. Not at all	4. Willing most of the times
		2. Somewhat willing	5. Willing all the time
		3. Not sure	

SECTION I: RESILIENCE TO FOOD INSECURITY

33	All things considered, how resilient is your household to the threats posed by drought?			
Not at all resilient	**Somewhat resilient**	**Undecided**	**Resilient**	**Very resilient**
34	If a drought was to occur this year in Luuq, my household would be able to fully recover from the damage caused by the drought within 6 months.			
Strongly Disagree	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
35	Compared to last year, my household is much better this year at coping with and adapting to the threats posed by drought?			
Strongly Disagree	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**
36	If the rate and intensity of drought was to increase significantly in the next 5 years, my household would have the ability to successfully adapt to the changing threats posed by drought.			
Strongly Disagree	**Disagree**	**Undecided**	**Agree**	**Strongly Agree**

37	If a drought was to occur in my area this season, my household would have access to sufficient financial resources to ensure that we fully recover from the threats posed by the drought.			
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
38	If a drought was to occur in my area this season, my household would be able to draw on the support of family and friends to ensure that we fully recover from the threats posed by the drought.'			
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
39	My household has learned considerably from how we have dealt with past drought events. This knowledge is crucial in successfully dealing with future drought events.			
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
40	If a drought was to occur in my area this season, my household would have access to early-warning information to ensure that we are fully prepared for the threats posed by the drought.			
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

APPENDIX B: FOCUS GROUP DISCUSSION CHECKLIST

We are carrying out a research on “MEASURING RESILIENCE IN SOMALIA: AN EMPIRICAL APPROACH” for Doctoral Degree Studies at the University of South Africa. We will be collecting information from your experiences, which we will use to determine how resilience programmes to food insecurity implemented by humanitarian organisations have affected your households in light of the recent drought in 2016/17. I am requesting that you participate freely, openly and actively in these discussions. The information that you will provide will be treated as confidential and all your actual names will not be recorded or used in the report.

Name of Moderator:……..

Name of Note Taker:…….

Interview Date:……

Location and Village: ……

Focus Group Discussion Guide

1. Purpose: To understand community history with shock and normal years and identify coping resources and strategies at the disposal of households.

   Three groups of men and women will identify a normal year (normal to above rainfall) and an abnormal year (below normal rainfall/drought). The groups will identify how they cope with shock of drought as well as the coping resources at their disposal. Group representatives will make oral presentations followed by discussion.

   Tools:

   Drought historic timelines

   Drought trend analysis

   Gender seasonal calendars

   Coping strategies

2. Purpose: To understand the community history of donor led resilience building activities in the last five years and the activities carried out by the various NGOs/Donors.

   Three groups of men and women identify the various NGOs that have implemented resilience building activities in Luuq in the last five years and the activities that they were involved in.

   Tools:

   Brainstorming
   Oral narration
   Case studies
   Life stories and testimonials
   Historic timeline analysis
   Trend line analysis
   Scoring and ranking

3. Purpose: To measure the impact of the resilience building initiatives to the food insecurity in the last five years.

   Each group will take the list of activities that were conducted by the various NGOs and score according to their perceptions how they feel these have been effective in increasing resilience to food insecurity.

   Tools:

   Scoring and ranking
   Brainstorming
   Oral narration
   Case studies

4. Purpose: Improvements that people want to see in the measurement of resilience. Each group will take the list of activities that have been used to measure resilience and indicate the improvements they would want to see on each measurement method.

   Tools:

   Scoring and ranking

5. Purpose: Improvements in general project implementation that should be adopted by the humanitarian agents. Each group is to list some of the improvements or activities that they feel should be implemented by the humanitarian agents so as to build their resilience.

   Tools

   Brainstorming

Thank you for your cooperation!!

APPENDIX C: KEY INFORMANTS CHECKLIST

Dear interviewee,

I am carrying out a research on “MEASURING RESILIENCE IN SOMALIA: AN EMPIRICAL APPROACH” for Doctoral Degree Studies at the University of South Africa. I will be collecting information from your experiences, which we will use to determine how resilience programmes to food insecurity implemented by humanitarian organisations have fared in light of the recent drought in 2016/17. I am requesting that you participate freely, openly and actively in these discussions. You are not obliged to answer any interview question that you do not feel comfortable to answer. Your participation in this study however will not involve any direct risk or benefit for you but it is very useful for the successful completion of my studies. The information that you will provide will be treated as confidential.

Village Key Informant Interviews Questions

1. How many people live in your household? How many adults? How many children? What is the gender composition?
2. What is your main occupation? Do you have an alternative source of income?
3. How much do you spend on food every month? On school fees? On household expenses?
4. What other skills do you have that you can use to earn an income?
5. What threats or hazards does your household experience?
6. How did you cope after the 2016 drought? Did your household members change their behaviours in response to the drought?
7. Do you believe you have the ability to cope with the next drought? If not why? If yes please explain.
8. Do you think you are more resilient this year than last year? If yes, in what sense? If no please explain

9. Have there been humanitarian organisations that have been working with you to withstand the drought? If yes what activities have they been doing?
10. Has their work changed in the last year (2016) compared to what they have been doing in the previous years? If yes in what way? Do you think the current work is better or worse, please explain.
11. Has any organisations tried to measure (ask you) how resilient you are? If yes, how did they do that?
12. Do you think the questions they asked were adequate to measure your resilience to food insecurity? If not, what could be improved?

Academics/Government Heads

1. What is your understanding of building resilience to food insecurity? How would you define it in the context of Luuq?
2. Have the organizations working in Luuq in the last five years been working on building resilience to food insecurity? If yes in what way? If no, please explain why
3. Would you say there is any difference between vulnerability and resilience in your understanding and in the context of Luuq? What vulnerabilities within Luuq were revealed by the 2016 drought? What resiliency characteristics were exposed by the drought in 2016?
4. Have the organizations working on resilience made and attempt to measure their impact? If you were to make an opinion do you think they have achieved their goal or not? Please explain.
5. Is there room for improvement in the way the humanitarian agencies are measuring resilience? Please elaborate for both positive and negative responses.
6. Has resilience gone up or down in view of the various projects that have been implemented? What about vulnerability?
7. What activities could the humanitarian agencies strengthen or embark on that will improve the resilience of households to food insecurity?
8. Do you believe that the local perception is a good measure of resilience to

food insecurity? Please explain your answer

9. Do you think the donor funding on resilience building measures has increased or decreased in Luuq in the last five years. Please explain your answer. Do you think this is a good or bad thing? Please explain.

NGOs/Donors

1. How would you define resilience to food insecurity in low-income households? Is it a useful concept?
2. What short-term measures bring about resilience to food insecurity in low-income households?
3. What is the greatest barrier to building resilience to food insecurity? How should this be overcome?
4. Does your organisation view resilience and vulnerability as having different meanings? Please explain
5. How can Luuq residents be made more resilient to future droughts?
6. In terms of a share of resources, how much of your organisation resources are dedicated to increasing resilience compared to other sectors? Is this likely to increase or decrease in the next five years?
7. Do you think the Somalia (Luuq) context is the right one for building resilience? Please explain
8. Does your organization have a measurement for the attainment resilience? Would you consider this a good measure? Please explain.
9. Do you think there is scope for improving measures by making them simple and user friendly or not? Please explain.
10. Are there any areas that need to be further researched about resilience to food insecurity in particular or resilience in general? Please explain.
11. To what extent do you think resilience is used as a resource mobilisation strategy by your organisation? Has this gone up or down in the last five years?

APPENDIX D: ETHICAL CLEARANCE CERTIFICATE

UNISA university of south africa

DEPARTMENT OF DEVELOPMENT STUDIES
RESEARCH ETHICS REVIEW COMMITTEE
APPLICATION FOR ETHICS REVIEW AND CLEARANCE

Date: 03/02/2016

Ref
#:2016_DEVSTUD_Student_01
Name of applicant: Mr/Ms Nqobile Ncube
Student #: 57503117

Dear Mr/Ms Nqobile Ncube

Decision: Ethical Clearance

Name: MR/Ms Nqobile Ncube

Student in the Department of Development Studies; Supervisor Dr V Madzlakapita

Proposal: Measuring resilience in Somalia: An empirical approach

E-mail: ncubenqobile@yahoo.co.uk

Qualification: Doctoral Degree in Development Studies

Thank you for the application for research ethics clearance by the Department of Development Studies' Research Ethics Review Committee for the above mentioned research. Your application was reviewed in compliance with the Unisa Policy on Research Ethics by the Department of Development Studies' Research Ethics Review Committee on 03/02/2016.

The proposed research may now commence with the proviso that:

1) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Department of Development Studies' Research Ethics Review Committee. An amended application could be requested if there are

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substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

3) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

Note:

The reference number 2016_DEVSTUD_Student_01 should be clearly indicated on all forms of communication. [E.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the Department of Development Studies' Research Ethics Review Committee.

Kind regards,

.....

Dr LJ Ntema
Departmental Chairperson-ERC
Department of Development Studies
Room TvW 4-25
Tel 012 429 2121
E-mail: ntemalj@unisa.ac.za

APPENDIX E: PARTICIPANT INFORMATION SHEET

UNISA university of south africa

PARTICIPANT INFORMATION SHEET

Ethics clearance reference number: **2016_DEVSTUD_Student_01**

15 May 2017

Title: MEASURING RESILIENCE IN SOMALIA: AN EMPIRICAL APPROACH

Dear Prospective Participant

My name is **Nqobile Ncube** and I am doing research towards a Doctorate in Development Studies at the University of South Africa. We are inviting you to participate in a study entitled MEASURING RESILIENCE IN SOMALIA: AN EMPIRICAL APPROACH.

WHAT IS THE PURPOSE OF THE STUDY?

I am conducting this research to find out the household characteristics that are pertinent to resilience. This will include and understanding of the household composition, the household assets, the crises that have occurred and how the household has employed different methods to cope to the crisis. The research will ask questions on how the impact of the food insecurity has affected the resilience of the households in Luuq including their perception on how organsations that have assisted them manage through and how this is or can be measured. The study makes use of focus group interviews to gather this information from household members who are residents of Luuq District.

WHY AM I BEING INVITED TO PARTICIPATE?

You have been chosen to participate simply because you are a resident of Luuq District and possible have the knowledge of what is sought above. You might be asked to respond to an individual questionnaire of which there are 410 others that have been selected or be part of a focused group discussion of which there are 10 groups of 15 members each comprising both men and women.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

The study involves *questionnaires / focus groups / semi-structured interviews* with short questions that you be asked about your household and the community. For the individual household questionnaire the expected duration is one and half hours while for the focus discussion snd semi structured interviews the duration will be about two hours.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

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Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason, however for individual questioonaires once the quesstionnaires have been submitted it will not be possible to withdraw though they will remain non identifiable and do not contain any personal data. Again, the participation in this study is voluntary and that there is no penalty or loss of benefit for participation or non-participation.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

There are no monetary or in-kind benefits that will be derived from taking part in this study your participation remains voluntary.

ARE THEIR ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

There are no negative consequences that are anticipated with participating in this study and the involvement is verbal without any expected side effects. As the study is on understanding the general way of living in Luuq it is not expcted that there is any risk that may come from others identifying the person's participation in the research. The permission to carry out this study has also been sought and cleared with the local authorities.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

Your name will not be recorded anywhere and no one will be able to connect you to the answers you give. Your answers will be given a code number or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. This anonymous data may be used for other purposes, such as a research reports, journal articles and/or conference proceedings. In each of these uses a report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

In focus group discussions however the discussion will be public, as the group will comprise between 10 and 15 people as such members of the group will be able to identify who said what as the membrs are known to each other. While every effort will be made by the researcher to ensure that you will not be connected to the information that you share during the focus group, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. For this reason I advise you not to disclose personally sensitive information in the focus group.

HOW WILL THE RESEARCHER PROTECT THE SECURITY OF DATA?

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The researcher will store hard copies of your answers for a minimum period of five years in a locked filing cabinet in Bulawayo, Zimbabwe for future research or academic purposes; electronic information will be stored on a password-protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There will be no payment or any incentives provided for participating in the survey. However the researchers will reimburse transport costs for respondents who come from beyond a 5 km radius of the focus group discussion venue.

HAS THE STUDY RECEIVED ETHICS APPROVAL

This study has received written approval from the Research Ethics Review Committee of the Department of Development Studies, Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings, please contact NQOBILE NCUBE on +263 773259723 or ncubenqobile@yahoo.co.uk. The findings are accessible for 5 years from the time of data collection.

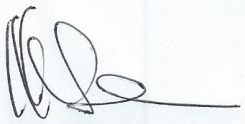
Should you require any further information or want to contact the researcher about any aspect of this study, please contact NQOBILE NCUBE on +263 773259723 or ncubenqobile@yahoo.co.uk.

Should you have concerns about the way in which the research has been conducted, you may contact Dr. SVP Madziakapita, on +260 9764 55128 or vmadziakapita@water.cc.

Contact the research ethics chairperson of the Department of Development Studies, Dr. LJ Ntema on +27 (0) 12 429 2121 or ntemalj@unisa.ac.za, if you have any ethical concerns.

Thank you for taking time to read this information sheet and for participating in this study.

Thank you.



Nqobile Ncube

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APPENDIX F: CONSENT TO PARTICIPATE IN THIS STUDY

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the _____*(insert relevant)*.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname…… (please print)

Participant Signature……Date……

Researcher's Name & Surname……(please print)

Researcher's signature……Date……

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