

**SUPPLIER COLLABORATION AND SUPPLY CHAIN RESILIENCE AMONG
RELIEF ORGANIZATIONS IN KENYA**

BY

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DECLARATION

The research paper is my original work that has never been submitted in any other university for assessment or award of degree except in University of Nairobi

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The research project has been submitted with my authority as the university supervisor.

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DEDICATION

My effort on this project is dedicated to my mother Susan and Staats for always guiding and encouraging me through this journey. Without them I could not have reached this far. MyAlmighty God blesses you all and gives you long life.

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It is with immense gratitude that I acknowledge the Almighty God for granting me this life time opportunity to persure this degree. My sincere gratitude goes to Staats Family for the unfailing encouragement, support and guidance invested in this degree. I acknowledge Mr. Michael K. Chirchir for the commitment and personal interest in shaping my skills, improving my work and creating a flexible and friendly environment for consultation. Finally big thanks to my colleague who were the source of guidance and direction at different level of the study.

ABSTRACT

Supplier collaboration has become part of our life in the current dynamic business environment, as almost every entity is incorporating supplier collaboration in their daily operation. With complexity and cost involved in supply chain activities no entity is taking any risk on it. Supplier collaboration has brought about operation efficiency, quality services, and timeliness and reduced cost of operation. This research paper is set to test the relationship of supplier collaboration and supply chain resilience among relief organizations in Kenya. In order to achieve this, the study looked at three objectives namely; the extent of supplier collaboration among relief organizations in Kenya, the relationship between supplier collaboration and supply chain resilience and the challenges of implementing supplier collaboration among relief organizations in Kenya. Descriptive research is used in this paper, the population targeted was 15 relief organization ranged Centre for Research on the Epidemiology of Disasters. The data was collected by primary and secondary sources and the data was analyzed by descriptive and regression model to determine the relationship of variables. For the findings, it was established that there was no significant relationship of supplier collaboration and supply chain resilience. The study also found out that most relief organization face challenges in implementing supplier collaboration within their organization; lack of trust between parties, poor planning and coordination during disaster, inability to anticipate disaster, lack of information and knowledge at any disaster and many more. The study therefore suggest that other researchers, to further carry out research on this topic to determine the relationship of supplier collaboration and supply chain resilience among relief organization in Kenya and other regions, and also relationship of supplier collaboration and supply chain resilience in other firms, by look for other variables. The study had difficulties in accessing the respondents and having them filling the questionnaires on time.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
ABSTRACT	v
ABBREVIATIONS AND ACRONYMS	x
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the Study.....	1
1.2 Research Problem	4
1.3 Research Objectives.....	6
1.4 Value of the study	6
CHAPTER TWO	7
LITERATURE REVIEW	7
2.1 Introduction	7
2.2 Theoretical Literature Review	7
2.3 Supply Chain Collaboration	8
2.4 Supply Chain Resilience	9
2.5 Empirical Literature Review	9
2.6 Challenges of Implementing Supply Chain Collaboration	10
2.7 Summary of Literature Review and Knowledge Gaps	13
2.8 Conceptual Framework.....	14
Figure 2:1 Conceptual model	14
CHAPTER THREE	15
RESEARCH METHODOLOGY	15
3.1 Introduction	15
3.2 Research Design	15
3.3 Target Population.....	15
3.4 Data Collection.....	15
3.5 Data Analysis.....	16
CHAPTER FOUR	17
DATA ANALYSIS, RESULTS AND DISCUSSION	17

4.1 Introduction	17
4.2 General Information.....	17
4.3 To which extent Supplier Collaboration affects Supply Chain Resilience among relief organizations in Kenya.	19
4.4 The relationship between Supplier Collaboration and Supply Chain Resilience.....	24
4.5 Discussion of Findings.....	28
CHAPTER FIVE.....	30
INTRODUCTION, RECOMMENDATIONS ANF SUGGESTION ON FURTHER RESEARCH.....	30
5.1 Introduction	30
5.2 Summary of Findings.....	30
5.3 Recommendations.....	31
5.4 Suggestions for Further Research.....	32
REFERENCES.....	33
APPENDICES.....	36
Appendix 1: Research Questionnaire	36
Appendix 11: List of 33 Disaster relief organizations	42

LIST OF TABLES

Table 2:1 summary of Knowledge Gaps	13
Table 4.1 Position in the Organization	18
Table 4.2 The Nature (Type) of Relief Disaster.....	18
Table4.3: Time period in the organization.....	19
Table 4.3 : Information Sharing	20
Table 4.4 : Information technology.....	21
Table 4.5 : Value of Multiple Tiers.....	22
Table 4.6 : Knowledge Management	23
Table: 4.7 : Regression Coefficients	25
Table 4.11: Model Summary	26
Table 4.12: ANOVA Results	26
Table 4.13 Descriptive Statistics.....	27

LIST OF FIGURE

Figure 2:1 Conceptual model.....	14
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ABBREVIATIONS AND ACRONYMS

CBO: Country Based Organizations

CRED : Centre for Research on the Epidemiology of Disasters

IAWG : Inter Agency Working Group

IOS: Internetwork Operation system

RBV: Resource based view

RDT: Resource dependence theory

SC : Supplier Supply Chain Collaboration

SCM : supply chain Management

IT: Information Technology

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Advancing quality response during natural and manmade disasters, supplier collaboration is a vital tool, though it has not been incorporated adequately in majority of relief organizations in Kenya. According to the World Conference held in Japan, there is a negative impact of these disruptions to most organizations at different capacities; this may include the capacity of an organization to serve its customers effectively and efficiently or the capacity of the organization to continue in operation (Juttner, 2005). The survey carried out by Business continuity institution in 2013, indicated that most companies experience at least one disruption in a year. The survey also found out that about 58% of supplier disruption occurs and affects the first tier of supply chain network. At this point in the supply network, that any small mistake may affect the entire operation of any organization. Kleindorfer & Saad (2005) argued that some of these disruptions are; equipment malfunctions, employee's strikes, terrorism, political instability and natural hazards.

Supply chain collaboration is considered as an important tool in mitigating enterprise risk that is brought by supply disruptions. In the context of relief organization, no organization can respond to any disaster successfully in isolation. Instead it must operate as part of a supply chain network for it to respond to rapid changing environment effectively and efficiently. Any disruption may affect the upstream or downstream of the network. Upstream is considered as the first tier of supply chain network, which is very critical for the general business continuity. Supply chain collaboration can either be vertical or horizontal, vertical collaboration is between supplier and customer, while horizontal collaboration is between competitors and other organizations. Vertical collaboration is costly, it needs investing in information integration, processes and resource integration.

Resilience is the ability of the system to survive, adopt and grow at any point of disruption (Fiksel, 2006, Scholten et al; 2014). Välikangas (2010) classified resilience as; 'proactive & reactive'. Proactive is the ability to preventing the happening of an event that disrupts the operation of a system or an organization and 'reactive' is the ability of system or an organization to recover from the event that disrupted its operation. Building supply chain resilience reduces and overcomes the risk by creating mechanisms of the organization to help return to its original state before the disruption (Jutter & Maklan, 2011). Resilience is being in

position to prepare for unforeseen events of disruption and getting prepared to recover in any case it happens (Jutter&Maklan, 2011; Chopra & Sodhi, 2014). Christopher & Peck (2004b), asserted that supply chain resilience can be achieved by four principles; re-engineering, collaboration, agility and risk management.

Relief organizations in Kenya are the most affected with these disruptions and for them to remain effective and efficient, it is important for them to create a good relationship within supply chain network. (Blackhurst et al. 2011; Wieland &Wallenburg, 2013) indicated that to have a strong resilience within any organization, relief organizations needs to have a good buyer-supplier relationship. It is this good relationship that is created at different supply chain network that will helps relief organizations to have better preparedness and quality response at any point of disaster. Chakravarthy (1982) stated that for managers to cope with dynamic environment, they need to have the right approach of managing supplier relationship for them to lessen the impact of any disruptions (Wieland &Wallenburg, 2013).

1.1.1 Supplier Collaboration

Collaboration is the activity where partners with common need and goal search for solution for their problems using their interdependent resources. Cao and Zhang (2011), noted parties detent to share information, responding to requests, adapt to change, set a side resources and diverse knowledge for the difficult operations. These helps them to effectively exploit resources, equipment and facilities, technical knowledge , the synergy with shared resources to minimize waste through interaction, early planning and proper execution that is well engaged with quality technical know-how.

The buyer- supplier relationship is further looked at as the quality collaboration, where by combined resources minimizes waste, well planned projects and quality executions (Hoegl&Gemuenden, 2001). There are six dimension of quality: coordination, communication and mutual support, balance of member contribution, effort & cohesion. Communication looks at affective sharing of relevant information on time that will improve on quality delivery of services. Cohesion focus on inter group positive relation in operation and general commitment of the entire team for the mutual benefit of all.

Fawcett (2012) termed supply chain collaboration as an import power that drives better

achievement and performances in relief organizations. Kogut and Zander (1992) explains that collaboration is new learning capabilities to generate new application for existing. The supplier collaboration in a supply chain network helps to exploit knowledge and technological potential for better and quality services. Nevertheless collaboration is not entirely profitable to organization, as it very costly to operationalize it. They are also other hindrances of collaboration among parties, which includes: failures of parties to share information, mistrust due to risk of sharing core information.

1.1.2 Supply Chain Resilience

Resilience is of relevance due to high level of risk brought about by complexity in the chain networks, practices and global sourcing. Resilience can be classified as: supply chain flexibility, velocity and visibility. Flexibility is the ease of supply chain structure to be reconfigured back after any disruption. Flexibility is the ability of the system to recover at minimal time, Scholten and Schilder, (2011).

According to Christopher and Peck, Velocity is the speed of delivering services at any disaster at minimal time, for this to be achieved; organized processes, improved lead time and focus on value added activities. Finally supply chain visibility is creating a platform for information sharing between the actors in the network for their mutual benefit.

Supply chain visibility is being in position to manage end to end information that is critical for organization effective and efficient operation. The resilience is about planning for expected events and being ready to bounce back after any event than your competitors (Jutter&Maklan, 2011; Chopra & Sodhi, 2014). Christopher & Peck (2004b) .The main aim of supply chain resilience in relief organization context is to implement operations and responses that promote efficiency and timeliness in delivery resources at disaster stricken region.

1.1.3 Relief Organizations in Kenya

Most countries all over the world are vulnerable to various natural and man-made disasters and Kenya is not an exception (Barcelo, Massaud and Davies, 2011). There are various forms of natural and manmade disasters, these include: terrorism, drought, food insecurity, disease outbreak, civic wars, road accidents etc. In recent days disaster occurrence has increased significantly, thus increasing its frequency, intensity and duration. The organization success depends a lot on how management will be able to create and maintain a strong supplier relationship within its supply chain networks.

Relief organizations are not profit making institutions/bodies but have a mission of helping vulnerable people in our society. They provide aid in areas like: poverty strike region, floods, war or conflict and disease outbreak and many more. These organizations depend fully on donors, government and well-wishers

Relief organizations enhance the logistics and provide material to assist in response to critical natural disaster and man-made disaster to rescue lives, medicate suffering and maintain human dignity. The relief organization working with host CBOs, serve the never ending needs, like coordination purposes, this includes Inter Agency Working Group (IAWG) on information management and technology, Information management Working group and Kenya Geospatial user group. The interest of IAWG & CBOs is to setting standards and laying platform of sharing information and build forum to engage inter-organizational information exchange.

1.2 Research Problem

Managing successful operations of relief organizations is usually difficult due to inadequate infrastructure, at any point of disaster struck region. There are important competences needed to be put in place to mitigate the situation on ground. In addition, aid workers, knowledge and skills are of importance to guarantee quick response (Tomasini and Wassinhove, 2004). Due to big numbers of people involved in relief operations and the characterized high level of uncertainty. It is necessary to allocate skilled persons and with knowledge of relief operation (Gustavsson, 2003).

Supply chain resilience for relief organizations is very crucial and critical element for successful relief operation on strategic, tactical and operational levels. To maximize on quality of delivering services and mitigation of impact of disaster occurrence, the

organizations must have a comprehensive visibility into Supplier Collaboration for it to be in position to respond, adapt, re-configure or retain the same situation before the occurrence of the disaster.

The Global Humanitarian Assistance report (2015) has classified Kenya as a fragile nation in terms of humanitarian aid. The countries demand for humanitarian assistance over years remains high due to Periodic incidences of inter-communal violence, terrorism, climatic shocks and food and livelihood insecurity which have left many people vulnerable. A number of the studied have been carried out on supplier relationship on organization performance.

Kovacs & Spens (2000) studied on the challenges experience at humanitarian logistic with respect to disaster at hand. The study was however based on a country as a case study. It looked at service performance continuity among maritime transport in machinery and food industries, which observed the buyer-supplier relationship. The outcome indicated good performance, quick delivery and reduced cost, largely depended on variables like: information sharing, trust and interaction between parties. Matter & Rohner (2009) analyzed the importance of implementing the principles of supply chain in a leading Swiss hospital. The study indicated that the hospital absorbed the supply management practices and tool, which led to good performance.

Nyamu (2012) studied supply chain challenges on humanitarian performance in Kenya .Some of the challenges in her study are delayed delivery of products, quality problems and uncertain market demand. Ndambuki (2013) advanced that there was great efficiency, reduced lead time and improved performance among humanitarian organization in Kenya, caused by supply chain integration.

Samuel (2014) the outcome indicated that, for good long term service delivery, buyer-supplier partnership should be observed. Njiru (2016) researched on factors affecting performance in NGOs in Kenya. He found out that, strategic supplier relationship among international NGOs affect their supply chain management performance significantly, contact management systems affect supply chain management performance of international NGOs

Thirdly the study also found out that communication affects supply chain management performance in international NGOs in Kenya. Among the above studies none looked at collaboration and resilience among relief organizations. Thus need of the study to the questions; on what extent is supplier collaboration implementation among relief organizations in Kenya? What is the relationship between supplier collaboration and supply chain resilience

among relief organizations in Kenya? And what are the challenges of implementing supplier collaboration among relief organizations in Kenya?

1.3 Research Objectives

- i. To determine the extent of supply chain collaboration implementation among relief organizations in Kenya
- ii. To determine the impact of supplier collaboration on supply chain resilience among relief organizations in Kenya.
- iii. To determine the challenges of implementing supply chain collaboration among relief organizations in Kenya.

1.4 Value of the study

The research the study will be of value to regional relief organizations and supply chain managers to understand importance of supplier collaboration and its service delivery. This will enable the senior management and operational managers to plan and coordinate resource on time and be able to mitigate any disruption that might occur. They will be able to put a side resources required for future and train the man power, to improve on their future preparedness. The knowledge will also enable them to efficiently address quality problems, high cost and late delivery of service to disaster struck regions.

The study will be beneficial to other organizations in the business environment, as they will borrow this knowledge for planning for their future needs, coordinate resource and more for lookon cost implications, quality and timeliness in delivery service to their customer for better satisfaction and customer retention. The research will also benefit the government and doors in understanding the pressure, relief managers undergo in sourcing for materials during any disaster. This information will help them come up with policies that ensure that relief organizations, achieve short term goals of accountability and transparency in delivery of services. In addition, this research will also provide background information to other researchers and scholars who may want to further the study in this area. This will be a source of literature review and also provide guidance on their studies; the study recommends future research to be carried out in this field.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter focus on supplier collaboration and supply chain resilience among relief organization the areas discussed are; forms of supply chain collaboration, empirical literature review, and challenges of implementing supply chain collaboration, summary of literature review and conceptual framework

2.2 Theoretical Literature Review

Study will cover two theories: Resource Dependency theory and System theory that will help to bring out the underlining importance on supplier collaboration and supplier resilience among relief organizations in Kenya.

2.2.1 Resource Dependence Theory

Resource dependence theory (RDT) is the interaction of firms in external environment to gain resources (Scott 1987). This kind of interaction between firms for the gain of resources makes firm create an interdependence link that makes firms depend on each other for their daily operations

The ability to create a link to enable firms to access resources, whenever they are in need is an act of collaboration. Nevertheless is the power in the network is unbalance; this causes conflicts among the parties. Min et al. (2005) argued that mutuality should be created by powerful firms encase they meet the need of less powerful firms.

This kind of beneficial arrangement of RDT enables relief organization to access quality resources on time and economically. This is very important in building strong resilient within relief organization at any point of disruption (Barringer and Harrison 2000).

2.2.2 Systems Theory

Relief Organizations are open system that interacts with an external environment; the external environment is where they draw their materials to meet uncertain demand at any point of disaster (Deeter-Schmelz 1997; Zsidisin and Ellram, 2003). The Quality and speed of mitigation or correction any disruption depends highly on resilience level that is brought about by supplier collaboration among relief organizations. The recovery time after any disruption is inversely related to supply chain resilience (Craighead et al. 2007, 132). The concept of system theory is incorporated in supply chain structure, in which variables like

manufactures, supplier and warehouse that connect, helps in the flow of raw materials (Sheffi and Rice, 2005). It is of great importance for any organizations to create a friendly environment with any party it draws its raw materials for its operation, as this good friendship will be of importance at any point of disruption to the organization. The organization will draw their raw materials there for them to reconfigure and stabilize their normal operation. (Svensson 2000; Hendricks and Singhal 2003; Kleindorfer and Saad 2005).

2.3 Supply Chain Collaboration

Supplier Collaboration is critical for organization to achieve reduced cost of operation, quality access of products and service and speed of delivery services to people affected. Ounnar, Pujomakaouche & Giambiasi (2007) noted that there is need for organizations to open up to their supplier on the benefit of cost investment return for them to effectively and efficiently save money. This can only be achieved by a good strategized way of sharing information with the supplier is created. Technology integration influences humanitarian supply chain performance greatly, Boweson, Close & Cooper (2002) accorded that collaboration is of great importance to the parties involved as they will have honesty and be in position to have positive interaction and share of information for the benefit of each other.

Choy, Lee & Lo (2002) stated creating a good bond link among suppliers does not happen overnight. It needs time because of various level of communications involved, as market of tomorrow presents a different set of challenges to each supply chain network. Good relationships in a network are unique and provide an opportunity for the organization and supplier to discuss mutual or company values (Shin, Collier & Wilson 2000). The knowledge management in supplier collaboration is a very valuable exercise that organization should take into consideration. This is the ability of organization to be able to measure the impact of the kind of capabilities, resources and information they are accessing from supplier and other parties, if they are effectively and efficiently having a good use and also being in position to filter what is not relevant for them.

2.4 Supply Chain Resilience

Pettit et al., 2013; Scholten et al., (2014), stated that resilience is a process not a onetime event. Supply chain resilience provides link in coordinating relief organizations to access resource and be able to mitigate the unforeseen disruption that occurs.

Resilience is not only about flexible, visible and have velocity but an event of risk management should be considered (Jüttner and Maklan, 2011). Therefore collaboration is important. It is evident that relief organizations appreciate good relationships which have helped to achieve quality service delivery, speed of delivery and cost effective service (Daugherty et al., 2006).

2.5 Empirical Literature Review

Many studies have been advanced on the impact of supplier collaboration on performance among relief organizations. The global studies includes: Kovacs & Spens (2000), identified humanitarian logistic challenges in regard to the disaster that occurred. This study it did not identify the connection on impact of supplier chain collaboration on performance.

Paiva, phonla&D'avila (2008), looked into the continuity on service performance that is influenced by buyer-supplier relationship in international marine users in machinery and food industry. Their outcome showed that there was dependability and cost that is affected by aspects like: information exchanging, trust and interact between the parties. It was challenging to get organizations that could willingly entrust their important information to another organization. Matter &Rohner, (2009), researched on the influence of implementing supply chain principles in a health care structure. The results indicated that the hospital management applied SRM principals, in case of Swiss leading hospital. This study overlook the on the cost involved in the operation and quality of services delivered.

Nyamu (2012) ascertained the impact of SCM challenges facing the humanitarian organization in Kenya. The findings of the study are: delayed deliveries, poor information integration, and uncertainty in demand. The study however, sought the solution on the challenges facing humanitarian organizations. Ndambuki (2013) advanced that there was great efficiency, reduced lead time and improved performance by integrating technology among humanitarian organization in Kenya. The study overlooked on the short-come of loose

of competitive age ability due to disclosed important information to organization that could turn out to be your competitors.

Samuel (2014) indicated that there should be long time supplier relation on sourcing, for an organization to achieve good service delivery. His study did not look into the risk of over-dependency like loose of competitive advantage to you competitors and cost involved in long term supplier collaboration. Njiru (2016) studied the factors affecting performance for NGOs in Kenya. He found out that: strategic supplier relationship with international NGOs affect their supply chain management performance significantly, contact management systems affect supply chain management performance of international NGOs and thirdly information sharing affected supply chain management performance in international NGOs in Kenya .

2.6 Challenges of Implementing Supply Chain Collaboration

Supplier collaboration approach has experienced many difficulties on applying it in the real world, rather than how it is said, most organizations are unwillingly to disclose their information to their trading partners (Barratt, 2004), as they are scared of the risk that may occur, which may affect their competitive age in the market place, (Delbufalo, 2012), there is also high cost involved and high level of mistrust among the partners, thus making it so complex to apply supplier collaboration in any operation (Cruijssen, 2012; Rossi, 2012). It is very expensive for organization to put in place the required information technology and implement it, as it very costly to build and implement information technology.

It is very costly and time consuming to create and maintain multiple tiers, along the supply chain (Choy, Lee & Lo, 2002). Knowledge management to some extend is challenging for organizations to identify to what extent they will use, information received. This requires organizations to put in place the right tool, human capacity and have right partners to achieve effective and efficient results.

Summary of Literature Review and Knowledge Gaps

Table 2:1 summary of Knowledge Gaps

This table contain: Authors, focus of the study, major findings and finally the knowledge gaps

Authors	Focus on Study	Major Findings	Knowledge Gaps
Matter & Rohner, (2009)	Relationship management in Health care.	Industrial supply management practices and tools were embraced.	This study overlooked; the cost involved in the operation and quality of services delivered.
Paiva, Phonla & Davila (2008)	The continuity of service performance that is brought about by supplier relation management in international marine users in case of machinery and food industries	There was a high level of dependability and reduced cost, due to good level of information exchange, trust and interaction between parties	It could be challenging to get organization that could willingly entrust with their important information.
Njiri (2016)	Looked into the variable affecting supply chain management in non-governmental organizations	The study identified the factors that affect SCM performance in NGO in Kenya.	Overlooked the fact that not all NGOs have effective supply chain management and at the same time those which practice it have not embraced it fully.
Samuel (2014)	The influence of supplier integration and performance of international humanitarian organization in Kenya	Findings are reduced lead time, improved performance and quick order processing.	This overlooked the short-come of loss of competitive age ability due to disclosure of important information to organization that could turn out to be your competitors.
Ndambuki (2013)	Humanitarian connection on integration and performance	There was a reduced lead time and improved performance, and increased efficiency	The study overlooked on the short-come of loose of competitive age ability due to disclosed important information to organization that could turn out to be your competitors
Nyamu (2012)	The impact of SCM challenges facing the humanitarian organization in Kenya.	The study identified the challenges that faces Humanitarian Organization in Kenya	The research did not seek to establish the solution on the challenges facing humanitarian organizations

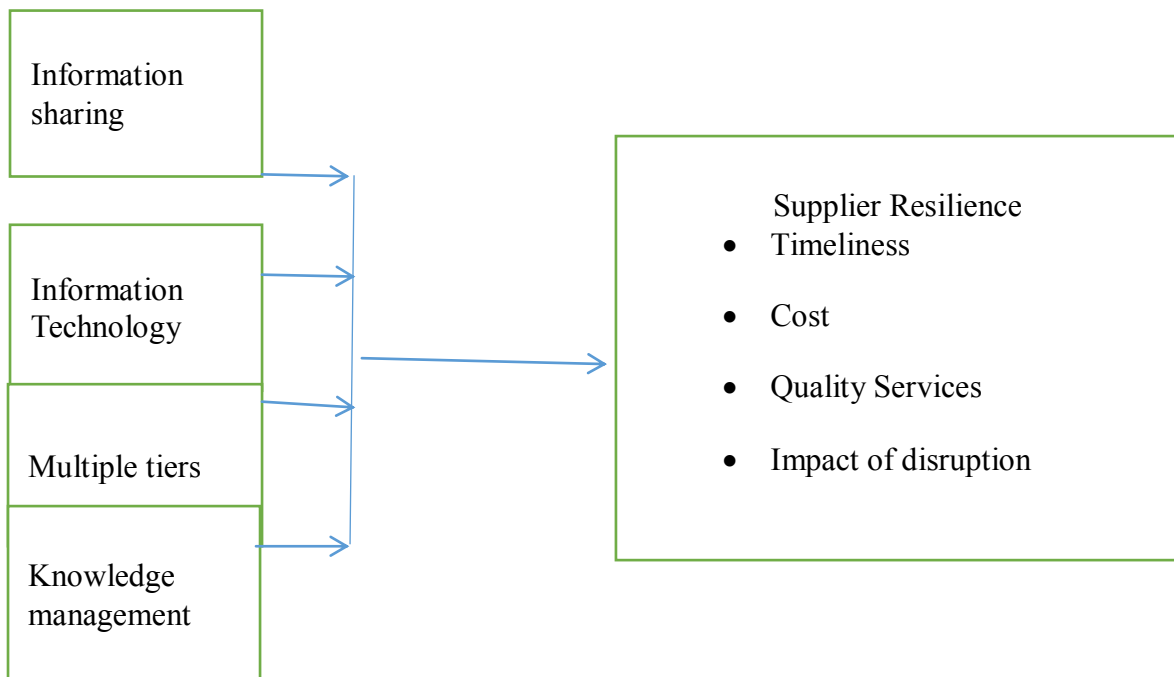
2.8 Conceptual Framework

The independent variable in this study is Supplier Collaboration and dependent variable is Supply Chain Resilience while the dependent variable is supply chain collaboration. This is shown in the table 2.1 below;

Figure 2:1 Conceptual model

Independent variables (Supply chain collaboration)
(SCRe)

Dependent variables



Source: Researcher (2018)

H₀; There is no significant relationship between supply chain collaboration and supplier resilience among relief organizations in Kenya.

H₁; There is a significant relationship between supply chain collaboration and supplier resilience among relief organizations in Kenya

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains; research design, target population, data collection procedures and tools for data collection and data analysis as well as finding.

3.2 Research Design

Descriptive survey design was adopted that enabled in assessing the respondents' feelings, thought and opinion. In determining the relationship between variables, or projecting finding descriptively to a predefined population; structured questionnaires and predefined target population was used. The survey is extensive flexibility; it was be easy to administer and to carry out data analysis (Cooper and Schrinder, 2003).

3.3 Target Population

According to the Centre of research on Epidemiology of Disaster, there are 33 best ranged relief organization worldwide. The research targets 15 relief organizations based in Kenya and this is shown in (Appendix II). Given that this population is relatively small, a census will be conducted.

3.4 Data Collection

The objective of the study was achieved by use of both primary and secondary data, and by use of structured questionnaires, that is easy in coding and interprets it, in terms of closed questionnaires (Berdie, Anderson and Neibuhr 1986). The study also adopted a Likert scale questions format whereby 5 represents a strong positive response and 1 a weak response.

The questionnaire had ; Section A contains general information questions; Section B looked into the extend of supply chain collaboration implementation within relief organizations in Kenya; Section C have questions on the Impact of supply chain collaboration on supplier resilience and Finally Section D contains questions on the challenges of implementing supply chain collaboration in relief organizations. The questionnaires targeted supply chain line officers, managers and senior management of relief organizations in Kenya, the questionnaires administered through drop and pick and Email methods which are flexible means that will give respondent time to conveniently fill at their own time and also enable the researcher to reach many respondents within a short time (Berdie, Andorson and Neibuhr, 1986).

3.5 Data Analysis

The completeness and accuracy of response of the questionnaires was being checked upon completion of the data collection process. Grouping and arranging the data according to specific questions was to be done. Descriptive statistics was adopted to analyze sections: Section A; General information; Section B; the extent of supplier Collaboration among relief organization in Kenya and Section D; challenges of implementing Supplier chain collaboration in relief organizations.

The statistical program for social science (SPSS) was used to analyze data, this was with the help of descriptive statistical tool like percentages, frequencies, pie charts that helped to present, understand and summarize the data collected. The Measure of central tendencies (mean, mode, standard deviation and percentages) used. Multiple regressions were used to determine the relationship of supplier collaboration and supply chain resilience among relief organizations.

A regression model will help us understand the influence, dependent variables has on independent variables.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where: Y is the predicted supplier resilience

X_1 is information sharing; X_2 is information technology; X_3 is multiple tiers value generation; X_4 is knowledge management;

e is the error term

β_0 is the intercept

$\beta_1, \beta_2, \beta_3, \beta_4$ are the regression coefficients to be estimated.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The objective of the study is to determine the extent of supplier collaboration among relief organizations, the relationship between supplier collaboration and supply chain resilience among relief organizations in Kenya and establish the challenges in implementing supplier collaboration among relief organization. The analysis, findings and discussion are presented in this chapter. The results are explained by use of frequency tables and measures of central tendency. And a likert type questionnaire was used.

4.1.1 Response Rate

The study targeted 15 best ranked relief organizations in Kenya, out of 33 best ranked worldwide by Centre for Research on the Epidemiology of Disaster. Out of 15 questionnaires administered to these relief organizations, 11 questionnaires were fully completed. This gave a response rate of 73%, the response rate is sufficient for the study. This rate is supported by Mugenda (2003) who terms any response rate of over 70% as acceptable.

4.2 General Information

The research aimed at determining the respondent position, the disaster nature and the time period of organization in operation.

4.2.1 Position in the Organization

The study identified the respondent position in the organization. The results are stipulated in table 4.1 below;

Table 4.1 Position in the Organization

	Frequency	percentages
Procurement officers	8	73
Procurement managers	3	27
Senior procurement managers	0	0

Source: Research data (2018)

The research found out that 73% of the respondents were procurement officers, 27% were procurement managers and there were no senior procurement managers that were available to give any feedback. Given that most of the respondents dealt with procurement, they understood the question well.

4.2.3 The Nature (Type) of Relief Disaster.

The study sought the nature of disaster the organization dealt with. The findings are shown in table 4.2 below.

Table 4.2 The Nature (Type) of Relief Disaster.

	frequency	percentage
Refugee support, flood,	10	91
others	1	9

Source: Research data (2018)

Majority of relief organizations dealt with refugee support, food supplies and flooding relief supplies, with a response rate of 90% and those that dealt with other relief, had a response rate of 10%. Given that the organization dealt with similar nature of disaster, the information filled was sufficient and reliable

4.2.4 Time period of organization operation

The study determined the duration of the respondents in the organization. The findings are in table 4.3 below.

Table4.3: Time period in the organization

	Frequency	percentage
0-10 yrs	0	0
11-20 yrs	0	0
21-30 yrs	2	18
Over 30 yrs	9	82

Source: Research data (2018)

From the finding 82% of the organizations have been in operation for over 30 years, 18% have been in operation within a range of 21yrs to 30yrs and none of the organizations targeted had been in operation in less than 20 yrs. This means that the provided data was reliable, given that these organizations have had long experience in disaster management

4.3 Extent Supplier Collaboration affects Supply Chain Resilience among relief organizations in Kenya.

The extent of supplier collaboration among relief organization in Kenya, the elements of supplier collaboration studied; Information sharing, Information technology, Multiple tiers and Knowledge management.

4.3.1 Information Sharing

The study determined the extent of information sharing among relief organizations in Kenya. The outcome is stipulated in table 4.4

Table 4.4: Information Sharing

	Mean	Std. Dev
The organization shares information with suppliers	4.86	0.93
Are there measure of effective information sharing in the organization	4.57	0.53
Do supplies inform the organization in advance in case they expect any disruption	3.86	0.90
The organization rewards suppliers who shares information	2.85	0.89
Overall mean	4.03	

Source: Research Data (2018)

The finding indicates most organization that they share information with supplier, which had a mean of 4.86, then followed by agreement of organization that they have put in place effective measure for information sharing, with a mean of 4.57 thirdly the organizations agreed that suppliers share in advance encase they expect any disruption, with a mean of 3.86, and lately the organization agreed that they reward suppliers anytime they share information, this had a mean of 2.85. From the findings, most of these organizations are beginning to open up with their s2upplier which has positively affected their cost of operation, quality of services offered and the time period of service delivery, (Ounnar, Pujo, Mekache and Giambiasi (2007).

4.3.2 Information technology

The study determined the extent of Information Technology in relief organizations. Findings are given on Table 4.4 below.

Table 4.4: Information technology

	Mean	Std. Dev.
Does the organization have integrated supply chain system	4.50	0.48
Has the organization installed software that shares information with suppliers	4.35	0.49
At relief organization, IT is used in the execution and management of purchase orders	4.66	0.48
At relief organization , a Web-based catalogue system is used	3.85	1.02
Overall mean	4.21	

Source: Research Data (2018)

From the findings, the respondents agreed that most organization used IT in executing and managing purchase orders, which had a mean of 4.66, followed by the question if the organization has integrated supply chain system, with a mean 4.57, then followed whether relief organization has installed software to ensures real time sharing of information with suppliers had a mean of 4.35, and lastly whether at relief organization uses web catalogued system 3.85 Organizations that are able to integrate technology in their daily operation with their co-parties and as while as enforce compliance across the multiple tires, has led to best and improved cost of operation, reduced lead time of operation and quality, (Bowersox, Closs and Cooper (2002).

4.3.3 Value of Multiple Tiers

The study sought out value of multiple tiers in supplier network among relief organizations in Kenya. The resulted are shown in table 4.5 below.

Table 4.5: Value of Multiple Tiers

	Mean	Std. Dev
Does supplier chain network have multiple tiers	3.95	1.13
Do organization ensure efficient information sharing within multiple tiers	3.78	0.76
Does the organization set a side resource to manager multiple tiers to avoid disruptions	3.22	1.23
Does the organization have trained employees to manger multiple tiers	3.12	0.67
The organization understands the risk profiles of each supply tier	3.02	1.34
The organization understands the number of up or down-stream layers across the supply chain	3.21	0.56
Does the organization understand the number agents in tiers	3.56	0.98
Overall mean	3.40	

Source: Research Data (2018)

The findings indicated that; the relief organizations has multiple tier scored a mean of 3.95, followed by the organization ensured efficient information sharing among the tiers 3.78, then if the organization understood the number of tiers scored a mean of 3.56, then whether the organization has set aside resources to manage the tiers, scored a mean of 3.22, the if the organization had trained employees to handle multiple tiers mean of 3.12, and if the organization had the knowledge on risk profile of multiple tires mean of 3.02, This indicated

that if though the organization appreciated the importance of multiple tiers ,it did not have knowledge on the risk profile of multiple tiers

Choy, Lee and Lo (2002), argues that creating a good relationship suppliers does not happen overnight. But it requires time to create strong and lasting relationship, this requires resources, time and trained employees to achieve it. The unique supplier relationship created by multiple tiers is beneficial for supplier and organization to agree on mutuality and values of their operation (Shin, collier & Wilson, 2002).

4.3.7 Knowledge Management

The study sought the extent of Knowledge Management among relief organizations in Kenya. Findings are given in Table 4.6 below.

Table 4.6: Knowledge Management

	Mean	Std. Dev.
My organization ensures that all employees are knowledgeable in most of the organization aspects	3.46	1.12
Relief organization’s continuously trains employees from then procurement department	3.67	1.45
Relief organization’s has put in place mechanisms for knowledge management	3.44	1.01
Relief organization’s encourages individual learning	3.12	1.11
Overall mean	3.42	

Source: Research Data (2018)

The results score of the questions on knowledge managed are ranked as follows; whether the organization train employees continuously from procurement department had a mean of 3.67, then followed by whether had knowledge on most aspects of the organization had a mean of 3.46, then if the organization has in place mechanisms for knowledge management, had a mean of 3.44 and lastly whether the organization encouraged individual learning, had a mean

of 3.12. The findings are supported by (Inkpen and Dinur, 1998) stated that managing knowledge is a critical part of supplier relationship.

4.3.8. Summary on the Extent of supplier collaboration.

Elements	Mean	Rank
Information technology	4.21	1
Information sharing	4.03	2
Knowledge management	3.42	3
Multiple tiers	3.40	4

The finding from the study found that most organization appreciated the use of Information technology which has an overall mean of 4.21, followed by Information sharing with an overall mean of 4.03, then Knowledge management with overall mean of 3.42 and lastly Value of multiple tiers with an overall mean 3.40. This finding implies that most organizations are learning to incorporate supplier collaboration in their daily activities in procurement.

4.4 The Relationship between Supplier Collaboration and Supply Chain Resilience

The second object of the study determined the relationship between supplier collaboration and supply chain resilience among relief organizations in Kenya. Regression analysis was used this objective. The results in the table 4.7 and table 4.8 below;

Table: 4.7: Regression Coefficients

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.968	3.116		1.594	.162
	Information sharing(x1)	-.089	.414	-.087	-.214	.837
	Information technology(x2)	-.039	.722	-.023	-.055	.958
	The value of multiple tiers(x3)	-.118	.590	-.109	-.200	.848
	Knowledge management(x4)	-.062	.573	-.059	-.107	.918

a. Dependent Variable: Resilience

Source: Research Data (2018)

From the data, the generated equation is;

$$Y = 4.968 + -0.214 X_1 + -0.55X_2 + -0.200X_3 + -0.107X_4$$

The regression results in table 4.7, established sharing information, Information technology, Value of Multiple tier and Knowledge management, supply chain resilience would be at 4.968; a unit increase in Information sharing lead a decrease in Supply chain resilience by 0.089, a unit increase in Information technology would lead to a decrease in supply chain resilience by 0.039; a unit increase in Value of multiple tiers would lead to a decrease in supply chain resilience by 0.118 and a unit increase in Knowledge management would lead to a decrease in supply chain resilience by 0.062. Significant testing for this research is carried out at $\alpha = 5\%$. For $df=10$, critical t value is 2.228. The t values for the independent variable are; -.214, -.055, -.200 and -.107 for x1, x2, x3 and x4 respectively. All these t values are less than critical t value; hence none is statistically significant in predicting Supply Chain Resilience, hence none is a suitable predictor. This is corroborated by the P value which are all higher than 5% (x1=83.7%, x2=95.8%, x3=84.8% and x4=91.8%)

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.188 ^a	.035	-.608	.888

Source: Research Data (2018)

a. Predictors: (Constant), Information sharing, Information technology, Value of multiple tiers, Knowledge management.

b. Dependent Variable: Resilient

Table 4.11 indicates that $R^2 = 3.5\%$, meaning that the variation in supply chain resilience explained by the variation of the independent variables is only 3.5%, while unexplained variation is 96.5%. This is a poor prediction model. It means that the major predictors of supply chain resilience are not in this model

Table 4.9: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.173	4	.043	.055	.993 ^b
Residual	4.736	6	.789		
Total	4.909	10			

Source: Research Data (2018)

a. Dependent Variable: Resilience

b. Predictors: (Constant), Knowledge management, Information sharing,

Table 4.12, indicates that for significant tests of the full model at $\alpha = 5\%$, numerator $df=4$ and denominator $df=6$, critical F value is 4.53. Since calculated F value, which is 0.055 is less than the critical value, we conclude that the regression model is not statistically significant; hence it is not a suitable, prediction model for supply chain resilience. This is corroborated by the p value of 99.3% which is greater than 5%

4.4 THE CHALLENGES OF IMPLEMENTING SUPPLIER COLLABORATION AMONG RELIEF ORGANIZATION IN KENYA

The study further sought to find out the challenges experienced by relief organizations when implementing supplier collaboration in their organizations. The findings are presented in table 4.13

Table 4.10 Challenges of implementing supplier collaboration among relief organization

	min	max	mean	Std. Deviation
Lack of trust	3	5	3.91	.944
The stringent donor rules & guidelines	2	5	3.45	1.128
The inability to anticipate disaster	2	5	3.45	1.128
Domestic barrier like policies	1	4	3.27	1.191
Inadequate transport	1	5	3.18	1.401
External complication due to foreign policies	2	4	3.09	.944
Lack of information & knowledge	2	5	2.91	1.044
Poor infrastructure	1	4	2.45	.934
Poor coordination among player	1	3	1.91	.831

Source: Research Data (2018)

For the findings from table 4.13, most respondents agreed that they highly experience these challenges and the results are as ranked ; lack for trust among parties by mean score of 3.91, second inability to anticipate disaster and stringent donor by mean score of 3.45, domestic barrier like policies by mean score of 3.27, inadequate transport by mean score of 3.18, external complication due to foreign by mean score of 3.09, policies lack of information by mean score of 2.91, poor Infrastructure by mean score 2.45 and lastly was poor coordination during any disaster by mean score 1.91. These finding are supported by the study carried out by Nyamu 2012 who looked at SCM challenges facing humanitarian organizations in Kenya Abdallah 2015 on Humanitarian supply chain performance

4.5 Discussion of Findings

Supplier collaboration is appreciated in today's world of competitive business. Thus it is necessary for entities to incorporate supplier collaboration to their operation, which it is very essential for entities to provide solution that are effective and efficient that meet the customer expectation. Relief organizations are bound to respond on time, have quality services that are cost effective for them to safe life. Supplier Collaboration was found to be implemented by relief organization and it enabled them to provide quality services that are needed in particular disaster strike regions. This is shown by the results in objective one of that study; which sought the extent of Supplier Collaboration among relief organization in Kenya. This was very crucial for relief organization in providing quality services, timely response and cost effective services during any disaster. These findings were found to be consistent with Abdallah (2015) findings that supplier relationship has improved the quality services, speed of service delivery and cost implication has reduced.

The finding of the second objective on the impact of supplier collaboration on supply chain resilience contradicts the finding by Abdallah 2015 who carried out research on the effect of supplier relationship among humanitarian organization. Finding on the third objective; a number of organization have not been able to come up with strategies that are good for assimilation of and implementation of Supplier Collaboration. It is therefore importance for any organization to put in place a good platform before considering adopting supplier

collaboration , they may include ; come up with a pool of qualified suppliers for real time requests, selection of supplies for various products and services. The finding was supported by Kamau 2013 that the success for relief organization is determined by good supplier relationship. The findings also confirmed that most origination experienced a number of challenges in implementing supplier collaboration, this is as ranged in table 4.13, this finding are supported by Nyamu 2012 who looked at SCM challenges facing humanitarian organizations in Kenya and Abdallah 2015 that carried a research on Effect of Supplier relationship among humanitarian organization. The results of the study is supported by the research theories; Resource Dependence Theory argues that every organization interacts with the external environment, thus creating any interdependence link with other organizations that facilitate the access of quality resources on time, and this is Supplier Collaboration

CHAPTER FIVE

INTRODUCTION, RECOMMENDATIONS ANF SUGGESTION ON FURTHER RESEARCH

5.1 Introduction

This chapter cover the summary of findings, conclusion limitation and recommendation in line with the topic of the study which is supplier collaboration and supply chain resilience among relief organizations in Kenya.

5.2 Summary of Findings

On information sharing, the findings indicated that most organization are learning to sharing information with their suppliers, which has greatly impacted quality of services, cost of operation and speed of response to any disruption. This is supported by Ounnar, Pujo, Mekaouche and Giambiasi, (2007) who states that organization are begging to open up to their supplier on cost investment return

On multiple tiers, most respondents agreed that most organization have multiple tiers in their supply chain network. These multiple tiers have been of great importance to relief organization, as the quality of services, cost of operation and has reduced significantly. Although there is a number of benefits that comes with multiple tiers, the big challenge most organizations are facing is that they cannot profile risk that comes with each tier in the network and the time period to create a strong tier. According to Choy, Lee and Lo, (2002) creating a strong supplier collaboration does not happen overnight, it requires commitment and a lot time.

On knowledge management and supply chain resilience, the finding relieved that a number of organization appreciated the concept that trained their employees on knowledge This involves making sure the employees knew you are their major supplier, the quality of products the organization needs and finally the right quantity need. Tan, Kannan and Handfield (1998) suggested that measuring supplier performance was a step to the right direction. This is very critical for the organization to identify the major supplier and profile them to avoid any major impact in case of any disruption.

Information technology is used with most organizations in executing and managing the purchase orders. Most respondent agreed that IT, influences supplier collaboration in a big extent, and this had led to timely response to disasters, access of information in really time,hence reduced quality problems and delayed delivery of services at any point of disruption. This is supported by Bowersox, Closs& Copper, (2002), who argued that integrating of information technology in supply chain network enables parties to be able to codify their practices and enforce compliance among the member parties,that creates honesty and openness among parties, which is health for the mutual benefit of each member

5.3 Conclusions

Supplier collaboration in relief organization requires capabilities that will enhance supply chain resilience effectively. The organization management needs to build a strong connection between suppliers have a complete supply chain. Basing on this findings of the study, conclusion are made that continuous improvement on information sharing, information technology, multiple tiers and knowledge management and a look on other variables will better the supply chain resilience.

From the findings the four elements of collaboration are not enough to determine the relation between supplier collaboration and supplier resilience, other elements should be tested. The study also concluded that the challenges adopted during implementation of supplier collaboration are adequate and in case there is a need to look further on other challenges, it will be beneficial to academia

5.4 Recommendations

The findings indicates that most organization share information with their supplier, which is a factor to any relief organizations, at any point of disaster, as it makes it easy for these relief organizations to select suppliers of crucial products or services they need within a short time. For relief organization cultivate this culture they need go an extra mile by rewarding supplier for information sharing. Another crucial factor is that most organizations are appreciating the use of multiple tiers within their supplier chain network. This is an important factor that will help in bettering good future working relations, quality of products and services and speedy delivery of services. But this is not enough for the organization just to create multiple tiers, they need to understand the risk profile brought about by each tier.

The continuous learning of employees is an important element that any management of an organization should consider, as individual learning enables them to understand the culture of organization and be in position to manage knowledge at their work areas. This true that an individual learning is the organization learning in totality. Lastly, organizations should ensure customer are satisfied on speed, dependability, flexibility, quality, and cost. If any of these objectives is not met, then the supply chain is obviously not performing well.

5.5 Suggestions for Further Research

This study investigated the effect of supplier collaboration and supply chain resilience among relief organization. The researcher suggests that more variables should to be identified and test by use of other statistical tools to determine the relationship between supplier collaboration and supply chain resilience similar studies be conducted on other humanitarian organizations in the Kenya so that to understand the relationship of supplier collaboration and supply chain resilience among humanitarian organizations .It is also suggested that other studies be done to investigate the challenges facing humanitarian organizations in their supplier collaboration efforts. This will enable these organizations come up with ways of mitigating these challenges and hence increase the performance of their supply chains.

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APPENDICES

Appendix 1: Research Questionnaire

The purpose of the questionnaire is to gather academic information on the impact of supply chain collaboration on supplier resilience among relief organizations in Kenya. The information collected shall be used for academic purposes and shall be treated with ultimate confidentiality. I request you to fill the provided spaces.

Section A: General information

1	What is the nature of humanitarian disaster are you engaged?	<ul style="list-style-type: none"> • Refugee/IDP Support • Food relief supplies • Flooding/landslide operation • Others(please specify) <p>-----</p>
2	The time period the Organization has been in operation:	1-10 years [] 11-20 years [] 21-30 years [] over 30 years[]
3	Does the Organization have supply Chain management Department?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4	If no who handles the supply chain management functions?	<p>-----</p>

Section B: Supply chain collaboration and supplier resilience

I) extend to which the Organization has implemented Supply Chain Collaboration in its operations.

1. Information sharing

Indicate your level agreement with the following statement relating to information sharing use in your organization: Use a scale of: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree & 5= Strongly Agree

The extend of information sharing	1	2	3	4	5
The organization shares information with suppliers					
The organization has put in place effective measures on information sharing with suppliers					
Suppliers always share information with organization in advance when they expect disruption in suppliers					
The organization reward suppliers who share information					

2. Information Technology on Humanitarian Supply Chain.

Indicate your level agreement with the following statement relating to IT in your organization: Use a scale of: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree & 5=Strongly Agree

The extend of Information Technology	1	2	3	4	5
The Organization ensures efficient use information technology across the across players					
The Organization has put in place enough resources to manage & improve information technology					
The Organization trained employees on how to use information technology					
The Organization understand the risk profile of information technology					

3. Multiple Tiers for value Generation

Indicate your level agreement with the following statement relating to Multiple Tiers in your organization: Use a scale of: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree & 5= Strongly Agree

The extend of Multiple Tiers	1	2	3	4	5
The Organization ensures efficient exchange of information across the multiple suppliers tiers					
The Organization has put in place enough resources to manage multiple tiers suppliers to avoid disruption					
The Organization trained employees on managing its multiple tiers suppliers					
The Organization understands the risk profile of each supplier tiers					
The Organization understand the number of agents present in each tier					

4. Knowledge Management

Indicate your level agreement with the following statement relating to Knowledge Management in your organization: Use a scale of: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree & 5= Strongly Agree

The extend of Knowledge management	1	2	3	4	5
The Organization ensures efficient knowledge management across the multiple suppliers tiers					
The Organization has put in place enough resources to manage knowledge suppliers to avoid disruption					
The Organization has trained employees on knowledge management on suppliers collaboration					
The Organization understands the risk profile of knowledge mismanagement					

ii) To what extent do you think Information sharing, InformationTechnology, MultipleTiers and Knowledge Management influences humanitarian supply chain resilience in your organization? Use a scale of: 1=Great extent, 2=Moderate extent, 3=little extend, 4=No extend.

The Impact of Supply chain collaboration on supplier resilience	1	2	3	4
Information sharing; <ul style="list-style-type: none"> • Information sharing has resulted to timely information • Information sharing has led to reduced cost 				
Information Technology <ul style="list-style-type: none"> • Information technology resulted to quality services • Information technology has led to timely service delivery 				
Multiple Tiers <ul style="list-style-type: none"> • Multiple tiers has reduced the impact supply disruptions • Multiple tiers has led to timely services 				
Knowledge Management <ul style="list-style-type: none"> • Knowledge management has led to improved quality services • Knowledge management has resulted to reduction in cost 				

Section C: Challenges in implementing Supply chain Collaboration.

State the extent to which you agree with the following statement concerning the extent to which you're Organization faces the following challenges in implementing supply chain collaboration. Use a scale of: 1= strongly agree, 2=Agree, 3=Not sure, 4=Disagree & 5= Strongly Disagree

No's	Challenges in implementing Supply chain collaboration	1	2	3	4	5
1	Most Organization have poor planning					
2	The high level of uncertainty in demand					
3	Poor infrastructure in the area of operation					
4	It is hard to keep track control & accountability of humanitarian project & their outcomes					
5	The lack of information & knowledge access the supply chain					
6	The Inadequate transport means to access affected areas					
7	The poor coordination among player inhibits efficient in disaster supplier collaboration					
8	The inability to anticipate disaster					
9	Domestic barrier in a country like policies that may attribute to delays					
10	The external complication due to foreign policies that cause delays in responding to emergency					
11	The stringent donor rules & guidelines inhibit efficient at effective supplier collaboration					
12	The lack of trust among players					

Appendix 11: List of 33 Disaster relief organizations

- Médecins[HYPERLINK "http://www.doctorswithoutborders.org/"](http://www.doctorswithoutborders.org/)Sans[HYPERLINK "http://www.doctorswithoutborders.org/"](http://www.doctorswithoutborders.org/)HYPERLINK "http://www.doctorswithoutborders.org/"HYPERLINK "http://www.doctorswithoutborders.org/"HYPERLINK "http://www.doctorswithoutborders.org/"Frontières[HYPERLINK "http://www.doctorswithoutborders.org/"](http://www.doctorswithoutborders.org/)HYPERLINK "http://www.doctorswithoutborders.org/"HYPERLINK "http://www.doctorswithoutborders.org/"HYPERLINK "http://www.doctorswithoutborders.org/"Doctors Without Borders (MSF)
- Mennonite Central Committee
- Direct Relief International
- The International Red Cross
- Brethren Disaster Ministries
- Ananda Marga Universal Relief Team
- The Nazarene Disaster Response
- REACT International
- All Hands
- City Team International Disaster Response
- OXFAM
- Billy Graham Rapid Response Team

- [ADRA](#)
- [Hope Worldwide](#)
- [NECHAMA](#)
- [United Methodist Committee on Relief](#)
- [Plan India](#)
- [Save The Children](#)
- [CARE](#).
- [AmeriCares](#)
- [Global Giving](#)
- [International Relief Teams](#)
- [Bill](http://www.gatesfoundation.org)[HYPERLINK](http://www.gatesfoundation.org)
["http://www.gatesfoundation.org/"HYPERLINK](http://www.gatesfoundation.org)
["http://www.gatesfoundation.org/"](http://www.gatesfoundation.org)
[HYPERLINK "http://www.gatesfoundation.org/"&HYPERLINK](http://www.gatesfoundation.org)
["http://www.gatesfoundation.org/Melinda Gates Foundation](http://www.gatesfoundation.org)
- [ICCO](#)
- [Relief International.](#)
- [WHO](#)
- [Mission Aviation Fellowship](#)

- World Vision
- Amref [HYPERLINK "http://amref.org/"](http://amref.org/) [HYPERLINK "http://amref.org/"](http://amref.org/) [HYPERLINK "http://amref.org/"](http://amref.org/)
- ShelterBox [HYPERLINK "https://www.shelterbox.org/"](https://www.shelterbox.org/) [HYPERLINK "https://www.shelterbox.org/"](https://www.shelterbox.org/) [HYPERLINK "https://www.shelterbox.org/"](https://www.shelterbox.org/)
- Humanitarian Coalition
- GlobalMedic [HYPERLINK "http://www.globalmedic.ca/"](http://www.globalmedic.ca/) [HYPERLINK "http://www.globalmedic.ca/"](http://www.globalmedic.ca/) [HYPERLINK "http://www.globalmedic.ca/"](http://www.globalmedic.ca/)
- Engineers Without Borders

Source: Centre for Research on the Epidemiology of Disasters 2013