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**COMPARATIVE ANALYSIS OF THE CHALLENGES OF GENERIC
ENGINEERING LOGISTICS TO HUMANITARIAN LOGISTICS IN
DISASTER RESPONSE AND RELIEF SUPPORT IN SOUTH AFRICA**

By

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of
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DECLARATION OF ORIGINAL AUTHORSHIP

I, **BAYODE ABIODUN** on this day 2nd of February, 2014 declare that the work in this dissertation is my own; all sources used or referred to have been documented and recognized, and this dissertation has not previously been submitted in full or partial fulfilment of the requirements for an equivalent or higher qualification at any other recognized educational institution.

Signed.....



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ABSTRACT

Logistics management has been extensively researched and implemented in the private sector, but it is gradually gaining traction in the humanitarian sector. Most humanitarian organization operations involve a mix of many activities. Some of them are involved in disaster relief, as short-term operations carried out immediately after a disaster, while some are involved in continuous aid work aimed at restoring normalcy to the disaster ravaged society and such efforts are longer term. Humanitarian organizations, particularly Non-Governmental Organizations (NGOs) are the primary vehicle through which donors channel their contributions, but it is unfortunate to note that many of these organizations face challenges with the logistics of effectively getting the relief aid to the intended users. The purpose of this study is to improve the understanding in humanitarian logistics (HL) and identify the key challenges affecting aid agencies during humanitarian action.

The study adopts a quantitative approach; data were collected using a semi-structured questionnaire. The questionnaire was used to identify the most outstanding subjects and areas of interest in line with humanitarian logistics challenges identified in the literature.

The findings from the research survey shows that there is an awareness of the importance of humanitarian logistics in the sector, but the results also show that only half of the participants of the survey reported that they have a logistics professional employed in their organization.

Furthermore, only 50% of the participants of the survey indicated that their organization has a preparedness plan in place in the event of an emergency. Other challenges identified are: lack of fund; difficulty to obtain real time information and poor knowledge management.

The author identified unavailability and tagging of funds as the most critical challenge the humanitarian organizations face because it hinders capacity building and organizational development. The study also suggests that learning and forging closer ties with private organizations is an effective means of overcoming some of the identified challenges.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CRED	Centre for Research on the Epidemiology of Disasters
CSI	Corporate Social Investment
EM-DAT	Emergency Events Data Base
EMDS	Electronic Document Management System
GM	Genetically Modified
HIV	Human Immunodeficiency Virus
HL	Humanitarian Logistics
IFRC	International Federation of Red Cross and red crescent
IS	Information Systems
NGO	Non-Governmental Organization
SCM	Supply Chain Management
UNRA	United Nations Refugee Agency



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GLOSSARY OF TERMS

A

Armed Conflict: This is a dispute between two or more parties involving the use of armed forces.

Assessment: The set of activities necessary to understand a given situation, entails the collection, up-dating and analysis of data pertaining to the population of concern (needs, capacities, resources, etc.), as well as the state of infrastructure and general socio-economic conditions in a given location/area.

C

Capacity Building: A process by which individuals, institutions and societies develop abilities, individually and collectively, to perform functions, solve problems and set and achieve their goals.

D

Disaster Management: Comprehensive approach and activities to reduce the adverse impacts of disasters.

Disaster Mitigation: A set of measures to reduce or neutralize the impact of natural hazards by reducing social, functional, or physical vulnerability.

Disaster Preparedness: The organization, education, and training of the population and all relevant institutions to facilitate effective control, early warning, evacuation, rescue, relief and assistance operations in the event of a disaster or emergency.

Disaster Prevention: The elimination or reduction of the likelihood that natural events may endanger human beings, their goods, their social assets, or their environment.

Disaster Response: A sum of decisions and actions taken during and after disaster, including immediate relief, rehabilitation, and reconstruction.

E

Emergency: A sudden and usually unforeseen event that calls for immediate measures to minimize its adverse consequences.

H

Hazard: Natural processes or phenomena or human activities that can cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Humanitarian Action: Assistance, protection and advocacy actions undertaken on an impartial basis in response to human needs resulting from complex political emergencies and natural hazards.

Humanitarian Assistance (Relief): Aid that addresses the immediate needs of individuals affected by crises and is provided mainly by non-governmental and international organizations.

Humanitarian Operations: Operations conducted to relieve human suffering, especially in circumstances where responsible authorities in the area are unable or unwilling to provide adequate service support to civilian populations

Humanitarian Principles: humanitarian assistance must be provided in accordance with the principles of humanity, neutrality and impartiality. Adherence to these principles reflects a measure of accountability of the humanitarian community

Humanitarian Worker: Includes all workers engaged by humanitarian agencies, whether internationally or nationally recruited, or formally or informally retained from the beneficiary community, to conduct the activities of that agency.

I

Information Management (IM): The sum of all activities, collection, processing, organization and dissemination of information in order to help humanitarian actors achieve their goals in an effective and timely manner.

M

Monitoring and Evaluation: An on-going review and control of the implementation of a project to ensure that inputs, work schedules and agreed activities proceed according to plans and budgetary requirements.

N

Non-Governmental Organization (NGO): An organized entity that is functionally independent of, and does not represent, a government or State. This term is normally applied to organizations devoted to humanitarian and human rights causes.

P

Preparedness: The capacities and knowledge developed by governments, professional response organizations, communities and individuals to anticipate and respond effectively to the impact of likely, imminent or current hazard events or conditions.

R

Refugee: A person who meets the eligibility criteria under the applicable refugee definition, as provided for in international or regional refugee instruments, under UNHCR’s mandate, and/or in national legislation.

Rehabilitation: Actions which enable the affected population to resume more or less “normal” patterns of life.

V

Vulnerable: Physically, mentally or socially disadvantaged persons who may be unable to meet their basic needs and may therefore require specific assistance.



CHAPTER 1 INTRODUCTION

1.1 Introduction

Disasters have been predicted to increase five-fold over the next fifty years (Kovács and Spens, 2005). Tsunami's, volcanic activity, typhoons, and floods are some of the most common natural disasters that continue to wreak havoc on humankind, also HIV/AIDS, poverty and wars also exist to make life much more difficult for people, most especially in Africa. According to the emergency data base (CRED, 2011), 332 natural disasters were recorded in 2011, a total of 244.7 million people were affected and about 30,773 deaths were recorded. The economic and financial impact of large scale disasters are quite significant, such disasters leave in their wake, damaged infrastructures and development made over a number of years is destroyed in minutes. The estimated economic damage caused by natural disasters in 2011 was estimated at over \$360 billion. Man-made disasters such as wars and armed conflicts on the other hand, have been reported to claim more lives and results in the displacement of people. Research has shown that only 3% of disasters are attributed to natural causes, while 97% are man-made (Van Wassenhove, 2006). According to the United Nations Refugee Agency (UNRA), the ongoing crisis in Syria is reported to have led to the displacement of over 1.6 million people and the number of refugees is expected to increase to 3.5 million by the end of 2013, while the number of deaths recorded so far is estimated at over 100 000.

These staggering figures disclose the amount of people that are in need or dependent on humanitarian organization for support and aid. Humanitarian organizations, particularly Non-Governmental Organizations (NGOs) are the primary vehicle through, which donors channel their contributions. These organizations get billions of dollars in aid annually from various donors around the world. For example, Long and Wood (1995) estimated the cost of food aid distributed during the food crisis in 1991 was over \$5 billion. The combined budget of the top ten aid agencies in 2004 was estimated to be over 14 billion dollars (Thomas and Kopczak, 2005).

The problems created by civil unrest, collapse of the economy, natural and manmade crisis, epidemic outbreaks, and the resulting effect from each, calls for concerted efforts that focus on deliberate, effective and well-timed responses. Most emergencies require an immediate response. Hence, supply chains are designed and activated as soon as possible. These

responses are methods for designing operations that facilitate the administering of aids to people that are most affected by humanitarian crisis.

Logistics has gradually become more essential in humanitarian operations by providing an essential connection between processes that facilitates the transportation of aid material, personnel and distribution of goods and services, while at the same time estimating their needs based demands. In fact, logistic activities account for about 80% of humanitarian operations and also the bulk of money spent on it (Trunick, 2005; Van Wassenhove, 2006). Thus, the success or failure of a relief operation depends to a large extent on how the various logistics elements of the operation are handled.

Humanitarian logistics can be described as a type of event logistics through which a network of activities, personnel, and equipment are assembled, deployed and then pulled out once the event concludes (Coyle et al., 2003). In the past, logistics was not considered an important part of humanitarian mission (Van Wassehove, 2006; Beamon and Kotleba, 2006; Overstreet et al, 2011), it was seen as a back office function, rather than an integral part of a relief operation. Interest in humanitarian logistics from both scholars and logistics practitioners is believed to have increased since the 2004 Indian Ocean Tsunami (Kovács and Spens, 2007; Christopher and Tatham, 2011).

In spite of the sum of money needed for effective humanitarian operations, the number of people that are dependent on humanitarian aid and unique challenges faced by humanitarian organizations, studies conducted on humanitarian logistics has been very small.

1.2 Problem Statement

Coordinating logistics during humanitarian operations is often a daunting task because of the high stakes involved and the distinct nature of emergencies. In comparison to commercial logistics, humanitarian logistics involves working with an ad hoc team of aid agencies in difficult and highly unpredictable environments (Overstreet et al, 2011). However, humanitarian logistics is similar to commercial logistics in various ways, yet best practices have not been able to cross over. According to Van Wassenhove (2006), the challenge for academics and logistics practitioners is develop the knowledge of humanitarian logistics, by building upon commercial logistics and to transfer specific core competencies from both the private and humanitarian sector.

1.3 Research Aim and Objectives

The aim of this dissertation is to identify barriers to humanitarian logistics faced by aid agencies and propose solutions to the identified problems. The research objective is to:

1. To determine the features of humanitarian logistics;
2. To identify barriers to effective logistics management in selected NGOs; and
3. To propose solutions to the identified problems.

1.4 Research Questions

- What are the logistics problems faced by humanitarian organizations?
- What can be done to overcome the problems identified?

1.5 Assumptions

The main focus of this dissertation will be on both local and international Non-Governmental Organizations (NGOs) that operate in the response phase of the disaster management cycle, thus eliminating aid agencies that are specialized in disaster prevention and recovery. Disaster response operations are the first of a sequence of events triggered by a disaster. This dissertation deals primarily with the logistical elements of the response phase. Furthermore, the author assumes that readers are conversant with transportation, warehousing and inventory management techniques.

1.6 Research Design and Methodology

Questions identified in this dissertation were answered using a quantitative research method. This involved conducting a survey of both local and international NGO's, data collection was achieved through the use of a well-structured questionnaire.

1.7 Significance of the Research

This study adds to the development of logistics management in two major ways. (1) It promotes relief logistics as a unique topic that deserves to be researched and analysed; (2) by relating the private sector logistics practices and that of the humanitarian sector, it indicates which conditions are suitable for humanitarian organization to learn from business supply chains and also partner with them to improve their performance by leveraging on their portfolio of resources, the former can be achieved by implementing systems and knowledge gained from the private sector to the humanitarian sector.

1.8 Project Layout

This dissertation consists of six chapters. Chapter one presents the circumstance and background of the study. Chapter two is a review of literature relevant to the study, and consists of sections on supply chain management, humanitarian logistics, disaster management cycle, stakeholders in disaster response and barriers to humanitarian logistics. The third chapter presents the methodology adopted for the research. The fourth chapter present the findings obtained from the study conducted regarding the challenges to humanitarian logistics. The results are discussed in chapter five and recommendations are given to address the challenges identified. Chapter six present the conclusion, which draws from findings obtain in chapter four, and also recommendation for future research is given.



CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This chapter aims to explain and describe humanitarian logistics as a subset of logistic management and also describes what factors inhibit the performance of humanitarian organizations during emergency response. In order to understand the challenges humanitarian organizations face, this section of the report describes logistics as it relates to relief operations, the key disaster management capabilities and the challenges that Aid agencies must overcome.

The chapter is organized as follows: Section 2.2 provides an overview of logistics and supply chain management. This provides background knowledge of commercial logistics, its evolution and importance. Section 2.3 describes forms of logistics. Section 2.4 reviews humanitarian logistics in disaster relief operation. Disasters and type of disasters are defined, next the disaster management cycle is introduced and lastly, the lifecycle of a relief operation is explained. Section 2.5 reviews the characteristics of humanitarian logistics, this section shows the uniqueness of humanitarian logistics – how it differs from logistics in the commercial sector. Section 2.6 defines humanitarian space, while section 2.7 describes the key players in disaster relief; Section 2.8 describes the main challenges humanitarian organizations experience in delivering assistance and aid.

2.2 Logistics versus supply chain management

In order to survive in today's global market, companies are forced to increase their market share both locally and internationally. Logistics has become an invaluable tool through which organizations in the commercial sector are gaining competitive advantage and improving their performance. Long term competitiveness depends to a large extent on how well these organizations meet the ever changing needs or the requirements of their customers in the most cost effective and timely manner.

The definitions of logistics and supply chain management (SCM) vary among researchers and field of study. The origin of logistic can be traced to its application in the military but it now has practical uses and has also developed to become a very important tool in the private sector.

The council of supply chain management professional (CSCMP, 2012) define logistics as the process of planning, implementing and controlling procedures for the efficient and effective flow, transportation and storage of goods including services and related information from point of origin to the point of consumption for the purpose of conforming to the customer requirements. While logistics management is defined as that part of supply chain management that plans, implements and controls the efficient flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements (CSCMP, 2012).

In the other hand, SCM has various definitions which vary slightly from one another. Various definition of SCM has been widely discussed by various authors and relevant organizations, amongst others are Ellram (1991), CSCMP (2012) and Simchi-levi et al. (2000). However, they all indicate the importance of integration, cooperation and information sharing between organizations in the supply chain network.

While, some authors have argued that logistics is a part of SCM that focuses on the movements of goods, supply chain management on the hand deals with relationships within the supply chain, others have a totally different view on the matter. The argument is however believed to be largely over semantics rather than a real difference (Lummus et al., 2001; Howden, 2009). Larson and Halldorsson (2004) also acknowledged the lack of agreement between SCM and logistics. In their study, Larson and Halldorsson (2004) identified four distinct perspectives on how SCM and logistics is viewed: these are: Traditionalist; Re-labelist; Unionist; and Intersectionist. The four perspectives are presented in Figure 2.1.

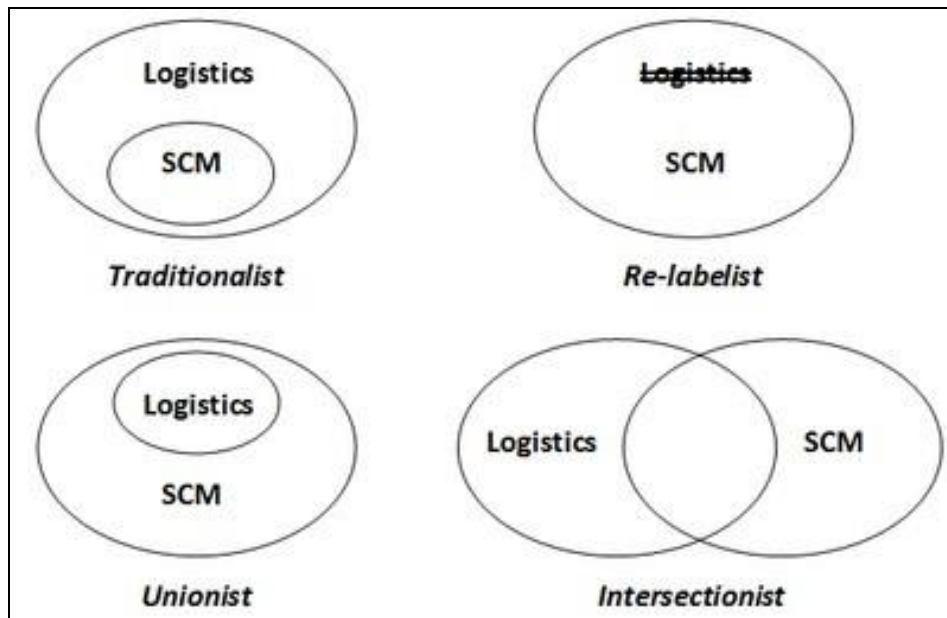


Figure 2.1 SCM versus Logistics (Source: Larson and Halldorsson, 2004)

The *traditionalists* view SCM as a subset of logistics. In other words, SCM is a division of logistics. The *re-labellists* argue that there is no difference between both concepts; they believe SCM is just another name for logistics. The *Unionist* sees logistics as part of SCM. Lastly, the *intersectionists* perspective is that logistics and SCM intersect but are two different concepts. While each of these views is valid in their own right, the unionist view is the most widely accepted amongst scholars and logistic practitioners (Lummus et al., 2001; Larson and Halldorsson, 2004). However, in the humanitarian world, the term logistics and SCM are used interchangeably (Overstreet et al., 2011).

2.3 Forms of Logistics

In general, existing literature on logistics can be categorized into three: (1) product support also referred to as engineering logistics, (2) production support which includes more traditional forms of logistics such as the supply chain and final product distribution, and finally more recently (3) humanitarian logistics. However, it is important to know the differences that exist between various forms of logistics. Taylor (2007) stated that “the fact is, there are, if any, significant difference between business logistics and engineering logistics, except that logistics engineers are more often charged with handling the more mathematical or scientific applications in logistics”. With regards to humanitarian logistics, it is still a relatively new field of study but logistics professionals in both the private sector and academia have alluded the similarities between it and business logistics – this will be broadly discussed further on in this chapter. It is important to also note that, because

humanitarian organizations do not have a manufacturing function in contrast to traditional engineering and business organization, their logistics activities are focused on resources mobilization and distribution.

2.3.1 Engineering Logistics

Logistics engineering is defined as the science of managing engineering and technical activities that deals with the design, supply and maintenance of all resources needed to support the objective and mission (Blanchard, 2004). Military Logistics is similar to the above definition, in the military; logistics is used to describe the design, procurement, maintenance and transportation of equipment and supporting items. From the description provided of logistic above, as it relates to both the military and engineering, it can be seen that the purpose of logistics is to ensure that while a system is being designed that all operational requirements are taken into consideration in order to produce a system that is supportable from a logistics perspective (Pretorius, 1997).

According to Blanchard (2004), logistics engineering serve two main purposes; (1) to ensure that a system is designed for supportability, and (2) to ensure the design of the overall support capability for the system. Trade-offs between the quality of the prime equipment and maintenance costs is explicitly considered during the system design. Logistics engineering ensure that a system is designed to be capable, reliable, affordable and available. To ensure availability, the system needs to be maintainable and this requires product support; which implies there will be physical movements (of spares and personnel) to maintain the system in working order.

2.3.2 Business Logistics

In the commercial sector, the emphasis of logistics is on business oriented activities linked mostly with the distribution of products. The council of supply chain management professional (CSCMP, 2012) defines business logistics as “The process of planning, implementing and controlling the cost effective flow and storage of raw materials, in-process inventory , finished goods and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.". In this framework, a firms typical logistics activities is depicted in Figure 2.2.

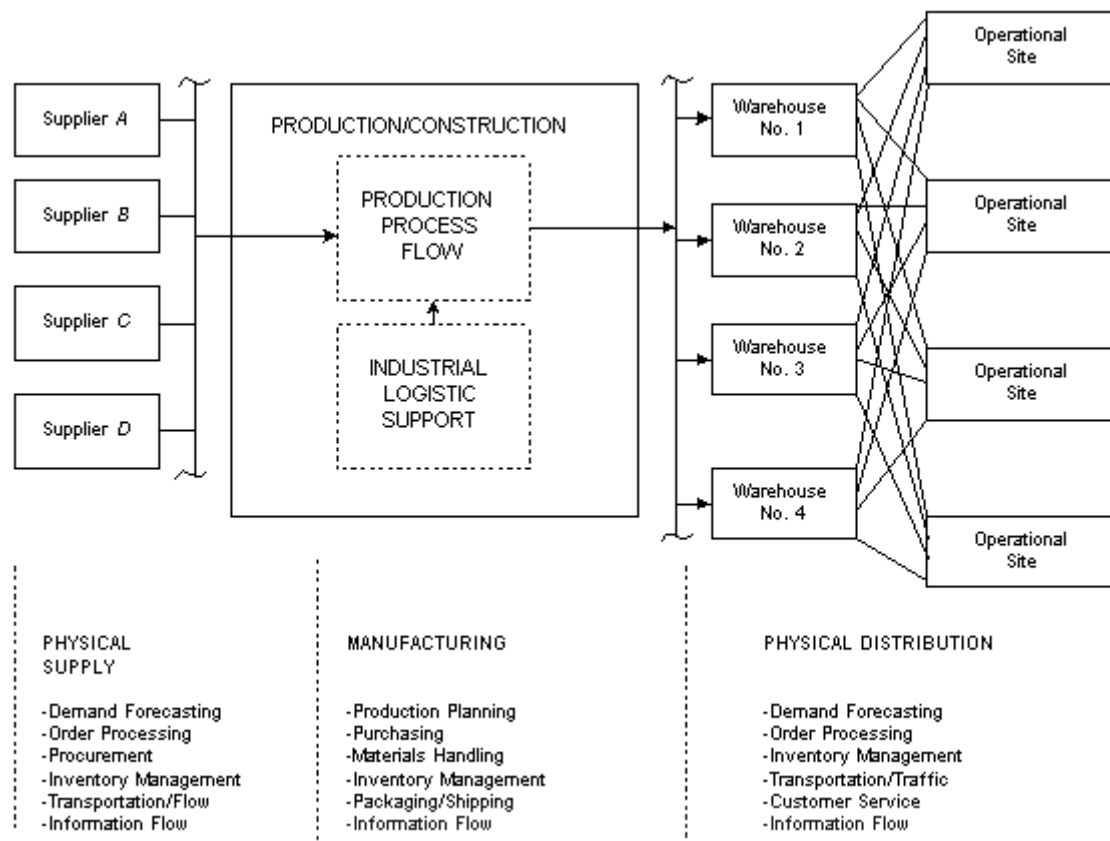


Figure 2.2 Business Logistics Activities (Source: Blanchard, 2004)

Business logistics also include activities such as customer service, demand forecasting, return goods handling, parts and service support in addition to those listed above (Lambert and Stock, 1993 cited by Pretorius, 1997). Business logistics is traditionally focused on managing physical flows (e.g. material) and information flows between organizations.

2.3.3 Humanitarian Logistics

Humanitarian logistics involve various processes found in the commercial sector. However, contemporary logistics practices have only been applied in the humanitarian sector in recent times. Humanitarian logistics is still considered to be in its infancy, researchers have compared humanitarian logistics capability to that of the private sector in the 1980s (Thomas, 2003a), but with the increased interest from both academic and logistics practitioners, it is slowly gaining prominence and developing into a discipline of its own.

Humanitarian logistics has been described by several authors in various ways. The most comprehensive and widely quoted definition of humanitarian logistic is described as “The process of planning, implementing and controlling the efficient and cost effective flow and storage of goods and materials as well as related information from point of origin to point of

consumption for the purpose of alleviating the suffering of vulnerable people” (Thomas and Mizushima, 2005), this definition is very similar to that of business logistics.

Other definitions include, that of Thomas (2003a), she defines it as the processes and systems involved in mobilizing people, resources, skills and knowledge to help vulnerable people affected by natural disasters and complex emergencies. Similarly, Van Wassenhove (2006) describes humanitarian logistics as the process of organizing the necessary resources and knowledge in order to help those affected by a disaster. From the definitions, we see that humanitarian logistics is focused on alleviating the suffering experienced by victims of a disaster.

Humanitarian logistics can be categorized into two parts; continuous aid work and disaster relief (Kovács and Spens, 2007). Most humanitarian organization operations involve a mix of both activities. While disaster relief are short-term operations carried out immediately after a disaster and include activities such as providing food, medicine, health care services and shelter. Continuous aid work in contrast is aimed at restoring normalcy to the disaster ravaged society and such efforts are long term.

2.4 Disaster Management and Humanitarian Operation Life Cycle

2.4.1 Types of Disasters

Disaster occurs when a vulnerable segment of the society experiences a hazard that leads to destruction, disruption and death. Van Wassenhove (2006) defines a disaster as “a disruption that physically affects a system as a whole and threatens its priorities and goals”. The Emergency Events data base (EM-DAT) managed by The Centre for Research on the Epidemiology of Disasters (CRED) defines a disaster as a situation or event which overwhelms local capacity, necessitating a request for external assistance (CRED, 2011). For a disaster to be registered on the EM-DAT database the following criteria must be met; (1) a minimum of 10 deaths must have occurred (2) there must be at least 100 victims (3) request for external assistance must have been made.

A disaster can either be man-made or as a result of natural causes often termed as an “*Act of God*”. Disasters can further be classified based on the speed of its occurrence (Van Wassenhove, 2006). Table 2.1 summarizes the various types of disaster, as seen from Table 2.1, natural and man-made disaster can either occur suddenly or slowly. Disasters that take a

long time to develop such as droughts and famine are examples of slow onset disasters, while terrorist attacks and hurricanes are examples of sudden onset disasters.

Table 2.1 Naming disaster (Source: Van Wassenhove, 2006)

	Natural	Man-made
Sudden onset	Earthquake Hurricane Tornadoes	Terrorist attack Coup d'état Chemical leak
Slow onset	Famine Drought Poverty	Political crisis Refugee crisis

Each of the disaster type described demands a particular response. Relief efforts made in response to an emergency varies according to certain factors, such as; the magnitude, location and the nature of the emergency. These factors affect the design and execution of humanitarian supply chains. For instance, there is a huge difference between a slow onset and sudden onset disaster when planning a relief operation. A slow onset disaster like famine usually takes some time to fully develop, which gives relief agencies enough time to take appropriate action. While in the case of a sudden onset disasters like earthquakes, it sometimes happens so fast, such that nothing could have been done to plan or respond appropriately to it. In such a situation, aid agencies are faced with different circumstances and challenges when compared to slow onset disasters. Since there is little or no time to prepare for sudden onset disasters, the numbers of casualties are high even in cases where the duration of the disaster is relatively short.

Apte (2009) in his study, differentiate between localized and dispersed disaster with respect to speed. Figure 2.3 gives an illustration of the link between location, speed of a disaster and difficulty of response.

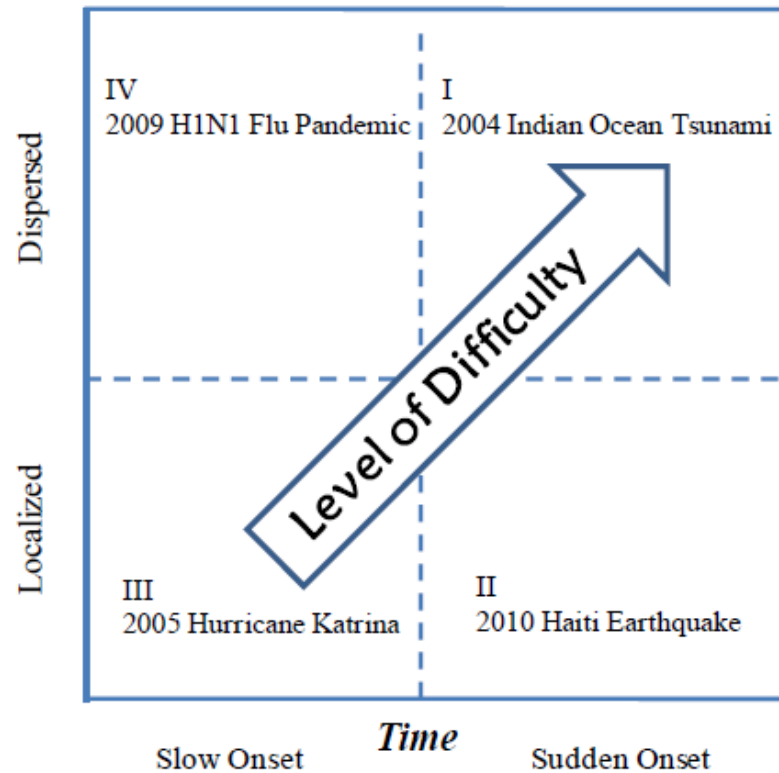


Figure 2.3 Classifications of disasters (Source: Apte, 2009)

This classification is also particularly useful because it sheds light on some of the factors that play an important role in disaster response. For example, a localized slow onset disaster is much easier to respond to because it covers a smaller geographical area, thus there is adequate time and local resources to respond to it. Dispersed and sudden onset disaster on the other, can be a logistic nightmare. It is usually destructive, widespread and could involve multiple locations.

2.4.2 Disaster Management Cycle

The disaster management cycle describes the process and strategy through which the various key stakeholders intend to reduce the effect of a disaster, how they respond during and immediately after the disaster has occurred and actions taken to recover from the disaster. Disaster management is made up of a number of phases (see Figure 2.4). However, the naming and number of the phases varies by author (Long, 1997; Thomas 2003b; Lee and Zbinden 2003; Van Wassenhove 2006; Kovács and Spens 2009). It is important to note that the four phases described do not necessarily, or even usually, occur in isolation or in that particular sequence. Often, phases may overlap and the duration of each phase depends to a large extent on how severe the disaster is.



Figure 2.4 Four phases of disaster management (Source: NEHRP, 2009)

2.4.2.1 Mitigation Phase

This phase include all measures that can be put in place to reduce the effect of a disaster. Mitigation measures include activities like identifying hazards, assessing threats to life and property and taking necessary actions to reduce the impact on the society. This phase of the disaster management cycle does not directly involve logisticians. Responsibility lies on the local authority and the people who live in the community.

2.4.2.2 Preparation Phase

While some disasters are impossible to prevent, some areas are more vulnerable to it than others. These disaster prone regions might be able to prepare for certain specific disaster and also take actions to reduce its impact when it does occur. The objective of disaster preparedness is to ensure that the various relief agencies have adequate capability, resources and capacity to carry out their mandate. Preparedness activities include developing a response plan, staff training exercise, resource mobilization and acquisition, evacuations plans, drills and supplies prepositioning (Tierney et al., 2001).

2.4.2.3 Response Phase

The response phase begins immediately a disaster occurs. The main aim of disaster response is to deliver humanitarian aid and assistance as fast as possible to the disaster site in order to minimize suffering and death (Beamon and Balcik, 2008). Response activities range from providing temporary shelter, food and health care services.

According to Cozzolino et al. (2012), the two main objectives of the response phase are; (1) to activate the “silent” network; and (2) to restore basic services and deliver humanitarian aid to a large proportion of the beneficiaries as fast as possible. The silent network refers to the various connections and relationships formed by humanitarian organizations; there is usually a huge presence of both local and international humanitarian organizations at the response phase. Cooperation and coordination between the organizations at this phase of the operation is crucial (Kovács and Spens, 2009; Tomasini and Van Wassenhove, 2009).

2.4.2.4 Recovery Phase

The focus at this stage of the cycle is on long term rehabilitation. Activities are aimed at restoring normalcy to those affected by disasters. Reconstruction, counselling and documentation of lesson learned are examples of recovery activities performed. Unfortunately, this phase of the disaster management cycle is often ignored. Funds obtained by aid agencies are mostly allocated for short term relief operation as opposed to long term rehabilitation (Kovács and Spens, 2007).

2.4.3 Disaster Relief Operation Life Cycle

The lifecycle of a disaster relief operation starts with a needs analysis, information obtained is used to develop the relief supply chain. Figure 2.5 gives an illustration of the relief mission lifecycle as described by Balcik and Beamon (2008), the Model is a modification based on the works done by Thomas (2003a) and Beamon (2004).

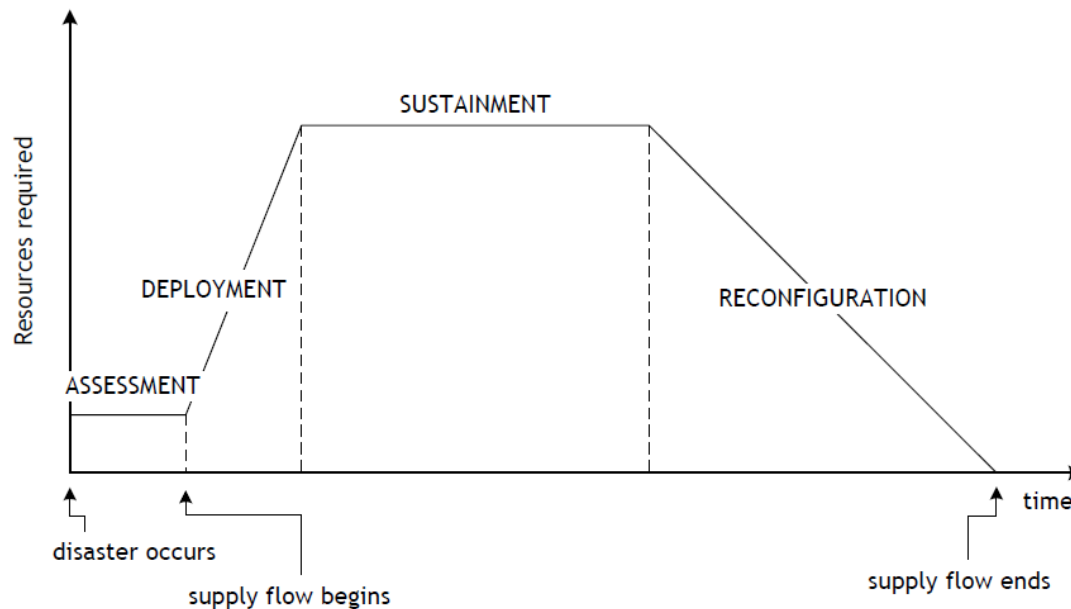


Figure 2.5 Relief mission life cycle (Source: Balcik and Beamon, 2008)

The model describes the phases and the overall flow of resources in response to an emergency in the affected areas. When a disaster strikes, an initial needs assessment is carried out. The needs analysis determines the severity of the disaster, the location, and the immediate needs of the people affected, local resources available and any other pertinent information required. This initial assessment helps humanitarian organizations to determine the following three things; (1) the kind of relief materials and services they will require, (2) when they will require it, (3) where to source it. After assessing the needs, humanitarian organizations begin the process of resource mobilization. This includes sourcing for funds, personnel and other forms of donations. Materials, equipment and personnel sourced are then strategically transferred to a location for easy distribution and access to the beneficiaries.

During deployment, the resource requirements are ramped up to meet the demands identified and as more information is obtained the needs of the beneficiaries can be better matched, thereby leading to a stability of demand. The third stage of the relief operation involves maintaining and sustaining the operation or supply chain over a period of time. Lastly, operations are ramped down and eventually terminated. The transition between each phase of the life cycle requires a change in focus, the supply chain moves from push to pull strategies depending on what phase of the life cycle the operation is at. There are also trade-offs between speed and costs during phase transition. For instance, in the first 72 hours of a sudden onset disaster speed is very crucial, relief materials are transported to site as fast as possible with little regards to cost (Van Wassenhove, 2006). At the sustainment phase, focus

shifts from speedy transportation of goods, to accurately meeting the requirements of the beneficiaries at minimal cost, an agile relief chain that can quickly adapt to this kind of environment is required (Oloruntoba and Gray, 2006). Lastly, in the reconfiguration phase leanness is needed (Childerhouse and Towill, 2000). Cozzolino et al. (2012) defines leanness as the ability to do a lot with less.

2.5 Characteristics of Humanitarian Logistics

Humanitarian logistics involves a range of activities similar to those found in commercial logistics. These activities include preparedness, planning, procurement, transportation, warehousing, tracking and tracing and customs clearances (Thomas and Kopczak, 2005). This suggests that the fundamental principles of managing the flow of information, finances and goods remain valid for humanitarian supply chains. However, how these quantities flow through the humanitarian supply chain is different from that of the private sector as is depicted in Figure 2.6.

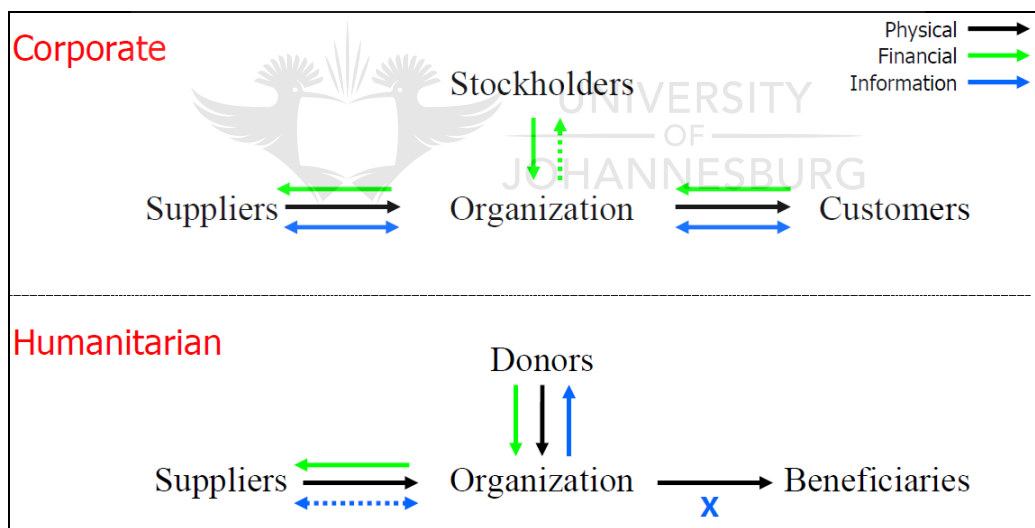


Figure 2.6 Supply chains (Source: Blanco and Goentzel, 2006)

In the humanitarian context, material flows are physical flows such as relief materials that move from the suppliers to customers and vice versa. Information flows include all the necessary support structures necessary to coordinate the material flow, such as order tracking, tracing and transmission of reports to donors. Financial flows deals with donations, payment schedules and credit terms (Kleindorfer and Van Wassenhove, 2004 cited by Van Wassenhove, 2006).

There are differences between humanitarian and private organizations. One major difference between private organizations and humanitarian organizations is their motivation and objectives. The survival and growth of humanitarian organizations depend on how well they meet the needs and expectations of their beneficiaries and stakeholders. Their focus is to save lives and reduce suffering caused by disasters. Although, financial stability is vital for their continued existence, money is a constraint rather than a goal (Beamon and Balcik, 2008). On the other hand, the goal of commercial organizations is to maximize profit (Thomas, 2003a; Kovács and Spens, 2007). Despite the relative differences between the private sector and humanitarians, for any given logistical operation, supply chain management lies at the centre of it all (Van Wassenhove, 2006).

According to Thomas (2003a), the key characteristics specific to humanitarian supply chain that distinguishes it from commercial supply chains include the following: zero lead times; high stakes; inadequate information; Operations are ad hoc, with poor measurement systems; and level of enabling technology available varies.

Commercial supply chains mostly rely on supply chain models designed for routine and repetitive actions (Long, 1997). In contrast, humanitarian relief operations are sudden and occur in complex environment. Hence, relief operation requires designing and managing a series of non-routine supply chains.

In the humanitarian sector, plans are not only made at the onset of a disaster but planning is a continuous process. Relief operation plans are regularly adjusted updated and adapted taking into account new environmental conditions and variations in information regarding demand and supply. While in the commercial sector planning is not as rigorous.

Customers assume different roles in commercial and humanitarian supply chains. In commercial supply chains, the customer is seen as an integral part of the supply chain and also drives the supply chain. While in the humanitarian context, the beneficiaries who are the end users have little or no voice in the process, they do not buy or pay for what they receive. Also, the consumer and beneficiaries are seen as two very distinct groups, the recipient of humanitarian aid is the beneficiary, while the donors represent the consumer.

Information management systems are an integral part of commercial supply chains and are also seen as management strategy. While, in humanitarian sector the use of information system is either non-existent or such systems are inefficient or archaic (Maon et al., 2009).

Inventory control and management is easier in commercial supply chains due to predictability of demand and inventory visibility. The reverse is the case in humanitarian supply chains, it is very difficult to manage due to the unpredictability of demand, high inventory levels and short lead times (Oloruntoba and Gray, 2006). The flow of Products is relatively smooth in most commercial supply chains as supply is used to match demand but it is a different scenario in the humanitarian supply chain. Unknown demand and poor infrastructure drastically affect the flow process. Demand patterns are known in commercial supply chain, (i.e. information involving requirements and locations can be accurately obtained but such data is hard to come by in humanitarian operations). Humanitarian supply chains need to be agile, rapid response to disaster is vital when operating in a critical and unpredictable environment (Oloruntoba and Gray, 2006). In commercial supply chains, relationships between key players are formalized and are long-term relationships. On the other hand, Humanitarian supply chains and networks are inherently temporal. The supply chain only last for the duration of the relief operation.

Another difference identified by Beamon and Balcik (2008) is related to performance measurement. According to Beamon and Balcik (2008), performance measurement is very direct in the private sector while there are no clear metrics for measuring performance in the humanitarian sector. Thomas (2003a), states that humanitarian organization focus on output performance, but in the commercial sector performance measures are well defined and align with the organization goals. Cost and financial bottom lines are several performance measures used in the private sector. However, in the humanitarian sector the term “cost” is ambiguous. It is very difficult to determine how the cost of an emergency should be calculated. For example, cost can be associated with losses incurred as a result of a disaster, this includes all financial loses, assets and future income lost by victims of the disaster. Otherwise, it can also be attributed to the cost incurred by humanitarian organization when providing humanitarian aid and assistance.

A comparison between the commercial supply chain and the humanitarian relief chains is presented in Table 2.2.

Table 2.2 Comparisons between commercial and humanitarian supply chain (Source: Beamon, 2004)

Characteristics	Commercial Supply Chain	Humanitarian supply Chain
Demand	Relatively stable, predictable demand patterns. Demands occur from fixed locations in set quantities.	Demand is generated from random events. Demand are estimated after they are needed, based on an assessment of disaster characteristics
Lead time	Lead time determined by the supplier-manufacturer-retailer chain	Zero lead times between the occurrence of the demand and the need for it, but the actual lead time is still determined by the chain of material flow.
Distribution network configuration	Well-defined methods for determining the number and locations of distribution centres.	Challenging due to the nature of the unknowns (locations, type and size of events, politics, and culture), and “last mile” considerations.
Inventory control	Well-defined methods are used to determine inventory levels based on lead time, demand and target customer service levels.	Inventory control is challenging due to the high variations in lead times, demands, and demand locations.
Information	Are well-defined, using advanced technology.	Information is often unreliable, incomplete or non-existent.
System	Are designed to produce high quality products at low cost to maximize profitability and achieve high customer satisfaction.	Minimize loss of life and alleviate suffering.
Performance measurement system	Focused on resource performance measures, such as maximizing profit or minimizing costs.	Primary focus on output performance measures, such as the time required to respond to a disaster or ability to meet the needs of the beneficiaries
Demand Type	Products.	Supplies and personnel

Despite the differences identified between commercial and humanitarian supply chains, both supply chains are also similar in various ways. Some of the similarities include:

- Both supply chains aim to improve efficiency and effectiveness in service and goods delivery;
- SCM processes are similar in both commercial and humanitarian supply chains (Maon et al., 2009);
- Visibility and coordination is required in both supply chain in order to improve responsiveness and effectiveness.
- Both supply chain could be very complex and involves a network of both local and international players;
- Supplies flow through humanitarian chains like it does in the commercial chain (Van Wassenhove, 2006); and
- Logistician in the commercial and humanitarian sector both face similar trade-offs issues in performance measurement (Mbohwa, 2006).

2.6 Humanitarian Space

Oxfam International defines humanitarian space as an operating environment in which the right of populations to receive protection and assistance is upheld, and aid agencies can carry out their mandate freely, by responding to the need of their beneficiaries in an impartial and independent way (Oxfam International, 2008). The humanitarian space exists in both a physical and virtual sense (Van Wassenhove, 2006). According to Van Wassenhove, in the virtual sense, the humanitarian space serves to protect humanitarian organizations and ensure they remain ethical. While in the physical sense, it denotes a zone free of strife.

Humanitarian organizations operate on the principle of humanity, neutrality and impartiality developed by Henry Dunant in 1859 (Tomasini and Van Wassenhove, 2009). Figure 2.7 gives a visual representation of the concept of humanitarian space.

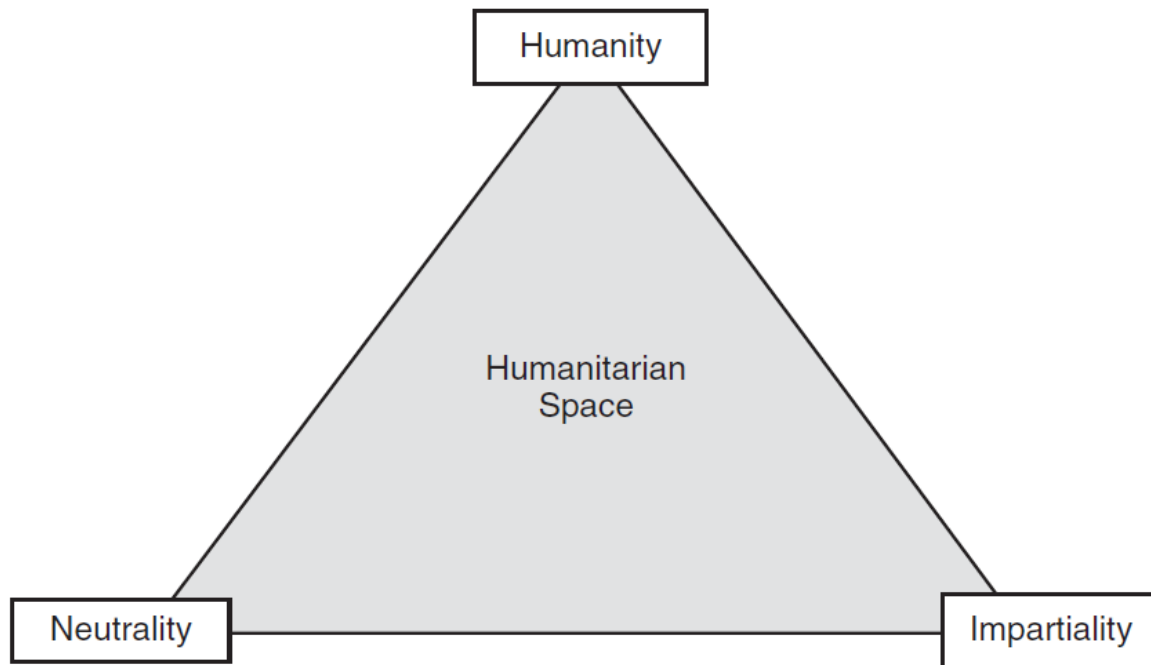


Figure 2.7 Humanitarian space (Source: Tomasini and Van Wassenhove, 2009)

These principles not only form the basis on which they operate but also define the role of humanitarian organizations (Tomasini and Van Wassenhove, 2009). The three main principles are explained below:

Humanity: deals with reducing the suffering experienced by victims of disasters, irrespective of their geographical location. This is achieved by bringing scarce resources into disaster affected areas or places experiencing social change (Keen, 1998 cited by Tomasini and Van Wassenhove, 2009).

Neutrality: Ensures that humanitarian organizations do not take sides when delivering aid and assistance. When these organizations intervene to a crisis they are expected not to form any kind of affiliations or allegiance with any group or party in a conflict. According to Tomasini and Van Wassenhove (2009), remaining neutral is very challenging and costly conditions for humanitarian organizations.

Impartiality: This principle discourages discrimination when providing humanitarian aid and assistance, and also ensures that assistance is given based on the urgency of the need. This principle can be appraised in terms of indiscrimination among groups, assistance given with regards to need, and through objective need recognition as prescribed by the community (Pictet, 1979 cited by Tomasini and Van Wassenhove, 2009).

Establishing and maintaining humanitarian space during a crisis is quite difficult and challenging, especially during armed conflict (Van Wassenhove, 2006). For instance during the 2002 Southern Africa food crisis, genetically modified (GM) food was rejected by government of the affected countries. GM free food had to be sourced and plans had to be made to rid the countries of the unwanted GM food. This development led to ethical debates between the affected government and the humanitarian organizations linked to the food relief operation. The whole situation led to complication in the supply chain because the humanitarian organizations involved had to design and develop a completely new supply chain mid-way into the relief operation to enable the delivery of GM free food and rerouting the rejected GM food to regions where it was needed and welcomed.

2.7 Actors in Humanitarian Logistics

Disaster relief operations usually attract a large and diverse pool of actors, although the various key players have the same goal of saving lives and reducing suffering, their motives, mandates and constraint may be different (Balcik et al., 2010). Kovács and Spens (2007) categorized the actors involved in humanitarian aid as; the Government, the military, Non-Governmental Organizations (NGOs), donors and private sector logistics firms. Van Wassenhove (2006) further identifies the media and the beneficiaries as important stake holders. Some of the key actors are described below.

2.7.1 Government

The government plays an important role in disaster management. It has the responsibility of putting structures and policies in place to mitigate disasters and also to aid disaster response, they can also restrict or limit the activities of humanitarian organizations. For instance, the international community cannot respond to a disaster except the government declares a state of emergency and request for foreign assistance. Also, some government policies have been found to hinder international relief efforts (Kovács and Spens, 2009; Van Wassenhove, 2006). In the other hand, the Government is capable of coordinating the efforts of the participating humanitarian organizations.

2.7.2 Military

The military is usually among the first responder to the scene of a disaster, their role in disaster response range from setting up temporary shelter, installation of communication

equipment, transportation, search and rescue operation and also to maintain law and order. The military response is usually well coordinated, fast and very effective. This is as a result of their well-defined command structure and their high logistical capability. An example of military intervention during the crisis in Haiti in 2010 is described by Barber (2011). Aircrafts and Naval ships were provided by the United States and French military, which were used for emergency operations and the distribution of large quantities of relief materials to victims of the earthquake.

2.7.3 Donors

There are different funding sources available to NGO, some of these are: (1) Local and neighbouring government are often very quick to provide donations and volunteers and also foreign governments through their embassies offer support in form of in-kind and cash donations for long term recovery projects; (2) Private businesses and individuals are a major source of donations for relief operations. According to Schulz (2008), donations from private organizations and the general public accounts for about 20% of donations received by relief organizations.

2.7.4 Non-Governmental Organizations (NGOs)

There are several NGOs providing humanitarian assistance and aid worldwide. NGOs are the primary mechanism through which donors connect to victims of a disaster. NGOs vary in size, influence and experience. They could be small local organizations, large international organizations like The International Red Cross and Red Crescent (IFRC) and Faith based organizations.

2.7.5 Logistics Service Providers

Private logistics firms and other service providers like DHL and UPS are playing an increasing role in disaster response. Some Logistics service providers have disaster response teams that work in collaboration with humanitarian organization with whom they have strategic partnership with.

2.7.6 Media

Availability of information is vital but unfortunately information is very difficult to obtain during a crisis. Information is either constantly changing or does not arrive in time or when it

does, it could be incomplete. Local and international media are a reliable source of information during a crisis, they usually are quick to arrive at the scene and broadcast live updates worldwide. Donors around the world are driven to fund relief operations once the news gets out. The level of media coverage a disaster has, can directly impact relief effort directed toward it. When there is little or no media coverage, the number of donations and commitment from donor is low and also such emergencies are quickly forgotten. On the other hand, where there is visibility due to high media coverage, donations are much larger. However, over exposure of the crisis could lead to situations where the supply chain is flooded with unsolicited goods and this becomes a problem in the relief operation.

2.8 Humanitarian Logistics Challenges

Aid agencies face many and sometimes complex challenges in getting the right assistance to the right place at the right time and doing all this in a cost effective manner. The following section describes some of the common problems that negatively impact humanitarian efforts during disaster relief operations.

2.8.1 Human Resource Issues

Thomas and Kopczak stated that employees in most humanitarian organizations do not have any formal training but learn on the job (Thomas and Kopczak, 2005). The lack of professionalism also extends to employees who manage logistics functions in relief operations. According to Pettit and Beresford (2009), the level of logistics expertise within aid agencies is low and those employed operate some way down the organisational structure. Oloruntoba and Gray (2003) in their study of humanitarian organizations found that less than half of the total work force found in humanitarian organizations had no formal education or were knowledgeable in logistics and transport management. This figure is quite alarming, given the vital role logistics plays in disaster response. Lack of professionalism in the humanitarian sector has been attributed to several factors, Thomas (2003a) stated that there may be problems with employee reliability due to lack of training. Most humanitarian organizations rely on volunteers who they train but can only work for a limited period of time before returning to their normal jobs.

Furthermore, responding to disasters is a complex and a high pressure job requiring long hours and working in dangerous or politically charged environment, the unpredictable nature

of emergencies and the intense working conditions presents real challenges to humanitarian organizations in terms of employee retention (Tomasini and Van Wassenhove, 2009). The increasing complex humanitarian environment and lack of adequate experienced aid workers causes burnout and ultimately leading to field worker quitting their job (Gustavsson, 2003). The loss of these professional field workers can be detrimental to aid agencies because experience is considered to be more valuable than relief operation plans (Eriksson, 2009 cited by Overstreet et al., 2011).

2.8.2 Lack of Collaboration

A major barrier to the delivery of humanitarian aid is lack of collaboration, during disaster relief operations, there is large presences of disparate actors at the disaster site, the individual organization present have different interests, mission, capacity and expertise (Van Wassenhove 2006; Balcik et al., 2010). Although, no single humanitarian organization has the capacity and funds to adequately respond to a crisis (Bui et al., 2000 cited by Balcik et al., 2010). Yet, there is very little collaboration between the various actors. Thomas and Kopczak (2005) found that during Tsunami relief operation only 56% of the humanitarian organizations that responded to the crisis actually worked together in setting up their supply chains.

For effective collaboration amongst aid agencies, it is vital to understand the factors that may hinder its implementation, Thomas and Kopczak (2005) listed competition for donor funds among aid agencies. Balcik et al., (2010) identified the chaotic environment, the large pool of actors from different organizations and inadequate resources as factors that impede collaboration.

Clearly effective collaboration is necessary for successful relief operation, lack of cooperation among actors in relief operations impacts their performance and can also lead to duplication of efforts, Since many humanitarian logistician have no idea what activities their counterparts are involved with, there is very little resource sharing or utilization (Tomasini and Van Wassenhove, 2009; Thomas and kopczak, 2005). Accurate assessment of the needs of the beneficiaries also requires collaboration amongst all organizations involved in the relief operation, this include sharing of information and communication of results (Darcy and Hoffman, 2003)

2.8.3 Availability of Information Technology Systems

Humanitarian organizations work in difficult environments and require access to information to manage their supply chains, manage their responses and also make critical decisions in an environment that is time sensitive. An appropriate information system offers relief agencies with an appropriate technical means to effectively and efficiently manage their operations in general and more specifically their supply chain function.

According to Pettit and Beresford (2005), modern technologies are capable of extending the range of communication, observation, increase the safety of employees and also improve operations. However, the development, adoption and implementation of modern information technology systems in the humanitarian sector is poor when compared to the private sector, where supply chain technology has resulted to logistics being viewed as strategic function (Thomas and Kopczak, 2005). Most aid agencies still utilize outdated technology or in some cases still rely on manual processes for their operations (Thomas and Kopczak 2005). There is no general industry standard in the humanitarian sector when it comes to Information technology (Gustavsson, 2003). Gustavsson stated that very little capital has been invested in modern information and logistic systems in the humanitarian sector and as a result humanitarian logistic tasks are undertaken below industry standard. In addition, effective communication systems is also very critical when responding to an emergency, because a fully function communication and information systems is critical to the success of relief operations (Long, 1997; Kovács and Spens, 2007). Humanitarian organizations should be able to communicate easily with donors and with their colleagues at the office. However, most humanitarian organizations usually have incompatible information systems, thus information flow is restricted, preventing them from being able to collect organization wide metrics (Overstreet et al., 2011). Humanitarian organizations with suitable Information technology can decrease repetition of efforts by restructuring current business processes, reducing overhead cost, lessen delays in mobilization of goods and services and also facilitate monitoring and evaluations processes.

2.8.4 Knowledge Management

In recent years, knowledge management has become an important topic both in private sector and in academia but this is not so in the humanitarian sector, Desouza and Evaristo (2006) listed poor knowledge management practices such as poor communication and information

sharing as reasons for project failures. Although, relief workers are experienced and highly skilled at their job, their knowledge is largely tacit. Thomas and Kopczak (2005) stated that most of the knowledge gained from relief operations is lost, mainly because of the large turnover rate of logisticians, which is often as high as 80% per annum. Tatham and Spens (2011) notes that improved learning both within and across humanitarian organizations will be of immense benefit to humanitarian organizations, but in order to achieve this, adequate mechanism need to be put in place to facilitate documentation and synthesis of lessons learned from every disaster.

2.8.5 Lack of Funds

Most humanitarian organizations do not have access to sufficient or very stable source of funding. They are dependent on donations for their continued survival, this becomes a constraint when donations are inaccessible or even when pledged funds are either delayed or cancelled (Oloruntoba, 2005). Donors are more interested in funding disaster response operations and are often reluctant to fund activities necessary to support organizational capacity and capability development (Long, 1997; Gustavsson, 2003). A major problem that arises as a result of the dependence of humanitarian organizations for funding is that donors tend to have a substantial influence on where and how their donations are used (long and wood, 1995; Blecken,2010). Some donors tend to tag their donations with some particular conditions and such practices negatively impact humanitarian operations. For instances, When funds are earmarked for disaster response operations only, it hampers aid delivery as this could lead to lack of spares and support services needed to maintain vehicles and planes used for transportation (long, 1997).

2.8.6 Other Barriers

Complex disaster often damage existing infrastructure to a level where aid delivery is seriously hampered. Gooley (1999) reported that in times of a disaster, transportation system are in poor conditions and as a result are unable to handle huge shipment of aids, displaced people and vehicles that come into the affected areas. Another important challenge to aid delivery is that, a lot of times beneficiaries and donors do not have a means of evaluating the effectiveness or accountability of aid organizations at the field level (Natsio, 1995). The lack of an acceptable performance measurement system in the humanitarian sector makes it difficult to access relief operations and learning from it (Macrae et al., 2002). Without

performance standard, relief workers have no yardstick to measure their success and also have no point of reference in order to improve their operations. Long and wood (1995) address the challenges caused by inventory shrinkages resulting from theft or damage along the distribution channel. They also indicated that the complex documentation required by customs for clearance of goods can become problematic, since relief materials often times pass through several countries via numerous modes of transportation. Humanitarian response to emergencies is fractioned and structured based on the organizations mandates and functional lines (Kent, 1987). Hence, in the event of a disaster, many humanitarian organizations come together at the site of the crisis. Once there, their supply chains usually compete for similar resources. Given the variety of relief agencies, researchers have recognised the need for a more efficient way and methods to promote inter-agency coordination. It has not only identified the need for interagency coordination but also coordination between aid agencies and other key players (Long and Wood, 1995).

2.9 Summary

This chapter describes the relevant topics in the literature in support of this dissertation. A description of humanitarian logistics was presented and a comparison between commercial and humanitarian logistics was discussed. The different phases of disaster were highlighted and the life cycle of relief operations was also presented. The chapter also covered the key stakeholders and challenges experienced by humanitarian organizations. Based on the review done, some key aspects relevant to this study were also presented. The next chapter presents the research methodology employed in this study.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction

This chapter details the research design adopted. It describes why a questionnaire research was selected and it also explains the rationale behind using this method for data collection. A valid study is one which collects precise data, which is capable of showing how the gathered data supports the research proposal and literature available on the subject matter.

3.2 Research Design

Burns and Grove (2009) define research design as a plan for carrying out a study with maximal control over factors that may affect the validity of the finding. Similarly, Parahoo (2006) describes it as a plan that describes how, when and where data are to be collected and analysed. Thus, the research design identifies the philosophy, methodology, aim, logic and result of a research.

3.3 Research Strategy

Research strategy describes the general plan of action; it explains how the research questions are going to be answered (Saunders et al., 2009), by identifying the sources a researcher would use in collecting the relevant data and taking into consideration the various constraint in the data gathering process such as, location, time, funding, ease of collecting data and ethical considerations.

According to Saunders et al. (2003), research strategy can be grouped into six; action research, case study, grounded theory, experiments, survey, and ethnography. Each of the research categories described above have their pros and cons. This study adopted the survey strategy for gathering data.

3.4 Research Methods

A research method can either be inductive or deductive. Deduction is generally carried out using a structured quantitative approach, while induction usually involves using a qualitative research method. According to Saunders et al. (2009), the deductive approach generalizes outcomes from a sample to a population, whereas inductions aim to create theories or explores new ideas.

Qualitative research creates important statistically conclusions about a population by analysing a representative sample of the population (Creswell, 2009). Data are commonly collected by observations and also through unstructured or semi-structured interviews (Saunders et al., 2009). However, quantitative research methods try to use statistics to test hypothesis. It is applied in randomized or non-randomized experimental and natural environment; numerical data is produced using instruments with specific response categories and also through standardized processes (Curry et al., 2009). According to Leedy and Ormrod (2010), quantitative research seeks to differentiate attributes of a phenomenon or study the relationship between two or more phenomenon.

Whitman and Woszczyński (2004) stated that the choice of the research method adopted for a study should be dependent on the research aims and objective. However, Creswell (2009) argued that in selecting the right research approach, the following factors should be considered; the research topic, time, and the amount of risk.

3.5 Data Collection

The two types of data gathering methods for any study are primary and secondary data collection (Saunders et al., 2003). Many researchers start with data found in peer review materials to answer or begin to answer their research questions and then use the new data collected to support their research. This study made use of both secondary and primary data.

3.5.1 Primary Data

The survey method was selected as the means of collecting data using a well-structured questionnaire, this method is quicker to implement and allows the researcher to collect data quickly and inexpensively, while ensuring the privacy and anonymity of participants of the study. Although questionnaires are the most common instrument used for data collection in research survey, structured interviews were proposed to be used to obtain data in conjunction with the questionnaires but this was abandoned because it would require longer time to set up interviews and also to get access to participants of the interview.

The questionnaire was prepared and sent out to the participants through the electronically, due to the limitations of using the survey method and also ensuring that the author adhere to ethical requirements, a short note was attached to the questionnaire detailing the purpose of the study and assuring all participants that the information obtained was strictly for academic use (a sample of the questionnaire is presented in the Appendix).

The questionnaire was structured using different types of questions such as open ended, list, category and scale as described by Saunders et al., (2009). In the questionnaire, open ended questions were used to obtain information that cannot be presented as a choice or in rating. List questions offer a list of alternatives to which the research participants can pick as many options necessary to answer the question. Lastly, scale questions were also used, these types of questions are structured using a 5 point Likert scale and are used to obtain the opinion of the survey participants in relation to various topics that deal with attributes, beliefs and their experience in certain subject matters.

3.5.2 Secondary Data

Saunders et al. (2009) identified documented secondary data as either written or unwritten materials which can be raw data sources, as well as a medium for storing compiled data. Secondary data used in this research was gotten from various online and offline sources, such as books, articles, journals, theses and reports.

3.6 Sampling and Target Profile of Participant Organisations

The humanitarian organizations were randomly selected. Each of the organizations selected is currently involved relief operation within South Africa – the target organizations were those who participate in disaster response. According to the age, financial strength or size of the organization they have varying capacity to respond to disaster. Emails with links to the online survey were sent to local and international humanitarian organization listed or described as “Emergency and relief”. The contact details were obtained from the department of social development website (DSD), which has a database of all registered NPOs in the country and also the internet was another source for identifying humanitarian organization that fit the profile. In order to select only the big and active NGOs, the following criteria were adopted:

1. All the international NGOs were considered for this study, because all of them were expected to consider the importance of logistics.
2. Only local NGOs that have legalized presence and NGOs that have at least a minimum of 10 employees.

3.7 Research Validity

The respondents were randomly selected and with regards to validation, the response rate relative to the study is not high, but it is acceptable for this level of study. Given the

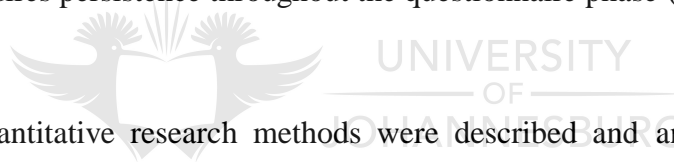
quantitative nature of the study, reliability and validity of the findings can be assumed. Fundamentally, validity determines whether the study really accesses what it was planned to measure or how candid the study results are. Therefore, the study can be said to meet the criteria relative to validity and reliability. The internal validity of the study results are legitimate because the sample selection process, data gathering, and the analysis performed were consistent with standard procedures adopted in quantitative research methodology.

3.8 Research Limitations

All of the organisations in this study are different. Although they fit a certain profile for size and sector, these organizations all have varied cultures and capabilities. The experience of an employee at one company may be different to that of another aid organization. Thus, thought must be given during the interpretation of data for this type of bias. Care must be taken to collect all of the necessary data in a given period of time, in order to maintain uniformity of approach with the collection process to check any shift in focus as a result of early findings. Allowing a clear focus of the study and not letting the purpose of the study to change in relation to time requires persistence throughout the questionnaire phase (Saunders, 2009).

3.9 Summary

Qualitative and quantitative research methods were described and analysed, the selected research method for the study was presented and also reasons for its adoption were stated. The data gathering process was sufficiently described, the structure of the questionnaire was presented and also the type of questions asked to the respondents. Lastly the limitation to the study was also presented. The next chapter presents the results and findings from this study.



CHAPTER 4 FINDINGS AND RESULTS

4.1 Introduction

This chapter presents the results of the data collected in this study via the survey in order to obtain a picture of humanitarian logistics performance of NGOs' in South Africa. The analysis of the results was conducted using statistical package for the social sciences (SPSS) and the discussion of the results is also presented in this chapter. The chapter concludes with a section presenting the main findings of the analysis of the data collected data for this study.

4.2 Response to Questionnaire

Out of a total of 50 questionnaires sent out electronically, 13 were returned after 9 weeks of initial postage. 13 questionnaires came back as failure delivery presumably due to change in email addresses. Furthermore, 10 respondents registered their disinterest in the survey and lastly no reasons were given by 5 respondents for their non-participation. The remainder of the submission was a total of 24 valid responses.

4.3 Section 1: Demography data and company profile

Question 1: Type of Humanitarian Organization

Figure 4.1 shows the regional distribution of the humanitarian organizations that participated in this survey.

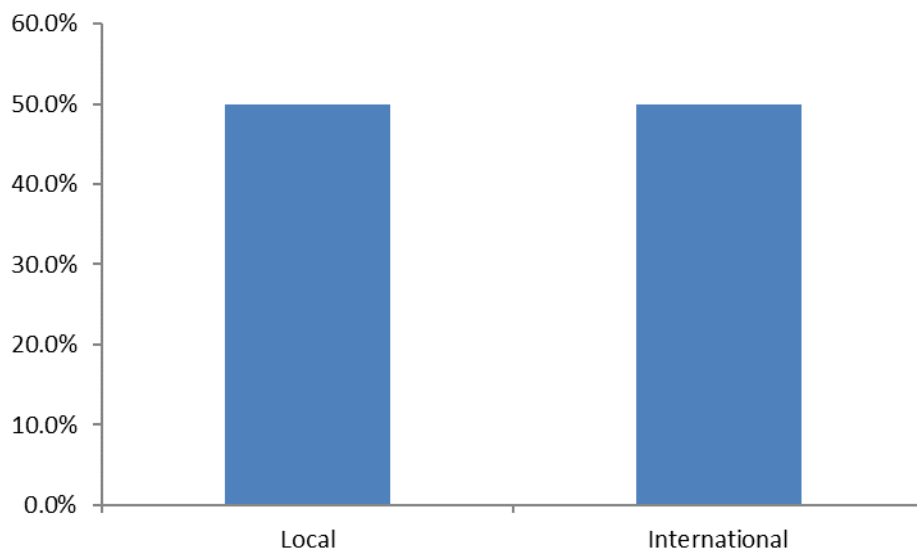


Figure 4.1 Type of organization

The result shows that 50% of the participants belong to local humanitarian organizations and the other 50% were international, this can be regarded as a fair distribution of both local and international humanitarian organization.

Question 2: Gender?

Figure 4.2 presents the gender of the respondents to the survey.

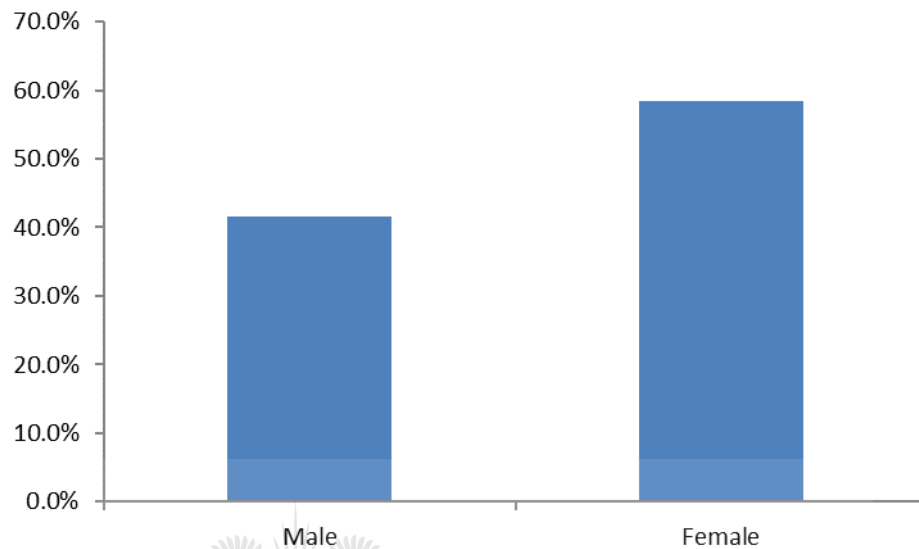


Figure 4.2 Analyses of gender of respondents

As can be seen from Figure 4:2, there were slightly more female (58%) versus male (42%). The gender of participants to the survey is not deemed to be a significant factor within the survey but it is quite interesting to note that women are actively involved in the humanitarian sector.

Question 3: Age?

The age distribution among the participants of the survey is presented in Figure 4.3.

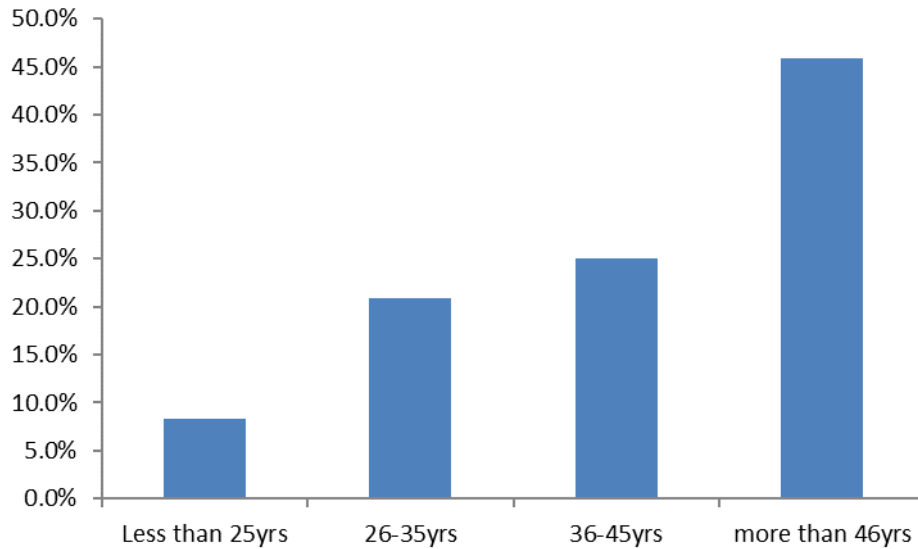


Figure 4.3 Age distributions of respondents'

8.3% of respondents are less than 25 years old, while 20.8% were between the ages of 26 –35 years, 25% of respondents were between the age bracket of 35–45years, while the highest percentage of respondents (45.8%) were above 46 years of age. This result indicates that there is a low involvement of young people in humanitarian work.

Question 4: Highest qualification?

Figure 4.4 shows a visual representation of the educational level of the respondents.

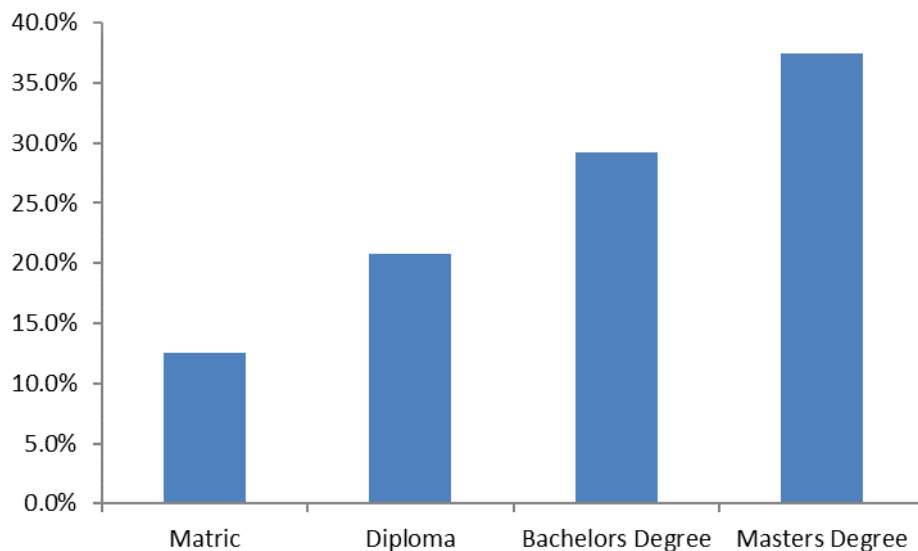


Figure 4.4 Level of qualification

Majority of the respondents had at least completed a university degree. 38% of the participants hold a master's degree, 29% have a bachelor degree. While diploma and matric

holders accounted for 21% and 12% respectively. This means that majority of respondents are well educated.

Question 5: how long have you been in the organization?

The number of years that participants have been in the employ of their present organization varies, as can be seen in Figure 4.5.

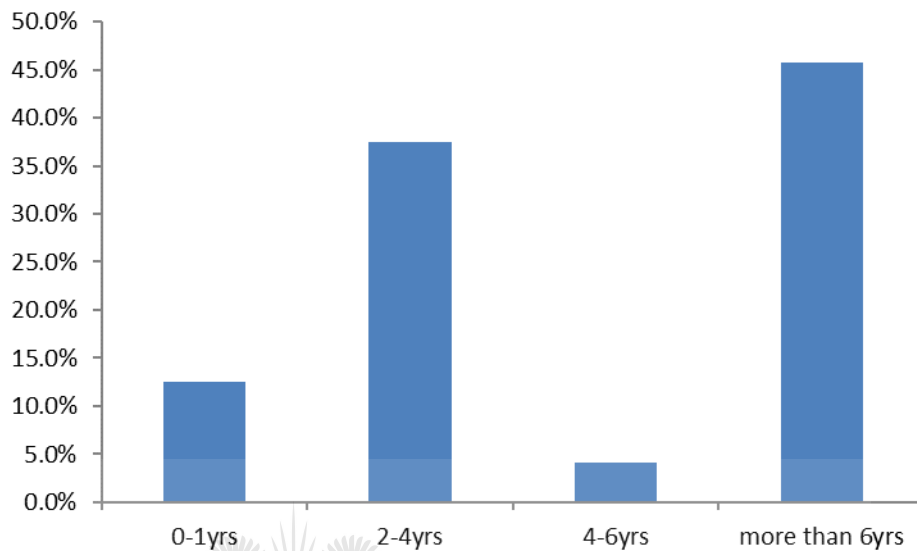


Figure 4.5 Analyses of years of employment

Majority of respondents have been in the organization for over 6 years. 13% have been in the organization for less than 1 year, 38% between 2-4 years, 4% between 4-6 years and 46% have been around for more than 6 years. The results are quite interesting as it shows that employee retention is high in the industry.

Question 6: Position in the company?

Figure 4.6 shows that the respondents cover a wide range of working areas, in order to simplify the analysis of the question, the various category that was provided by the respondents were summarised into five groups: project manager, project administrator/coordinator, volunteer, logistic manager and other.

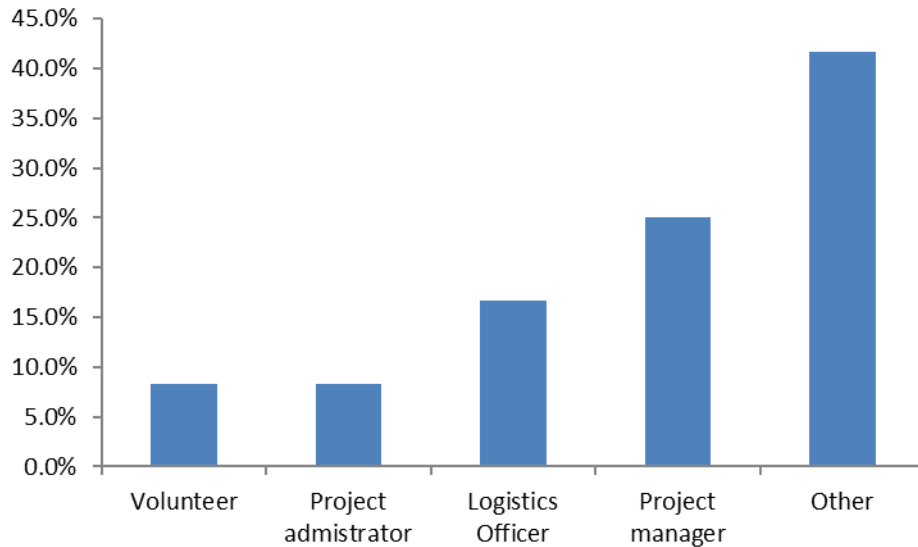


Figure 4.6 Positions in the company

17% of the respondents are logistics officers. Project managers accounted for 25% of the sample size, while project administrators and volunteers had a similar percentage composition of 8%. However, majority of the respondents (42%) belong to the category “others”, this grouping includes the likes of chief executive officers (CEOs), directors, nurse, human resources manager, business coordinator and administrators.

Question 7: Is there any logistics professional employed in the organization?

Figure 4.7 shows the availability or employment of a logistics expert in the respondent’s organization.

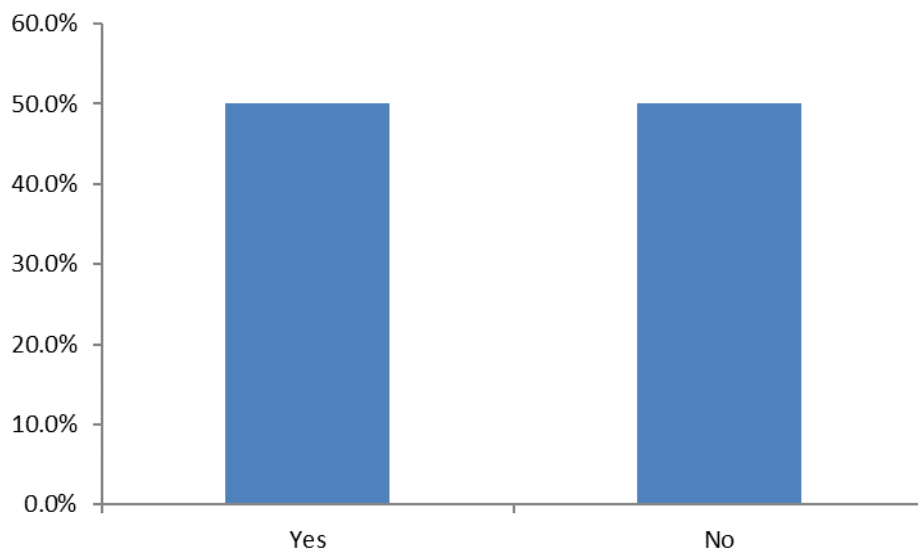


Figure 4.7 Employment of logistic professional in the organization

50% of the respondents indicated that they have a logistics professional employed in their organization, while the rest of the respondents (50%) replied in the negative.

Question 8: Logistics/supply chain management is considered critical for project success in this organization?

Table 4.1 contains the result of question 8 of the survey; it shows the views of respondent with regards to the importance of logistics management to humanitarian project success.

Table 4.1 Importance of supply chain management

	Mean
24	3.88

The mean score of 3.88 obtained from Table 4:1 above indicates that majority of the respondents believe that logistics is a vital tool for project success.

Question 9: Does your organization have disaster/emergency preparedness plan in place prior to the onset of the disasters to improve capability and capacity to respond to emergencies?

The result as seen from Figure 4.8 show whether there is a preparedness plan in place in the organization to facilitate responding to a disaster.

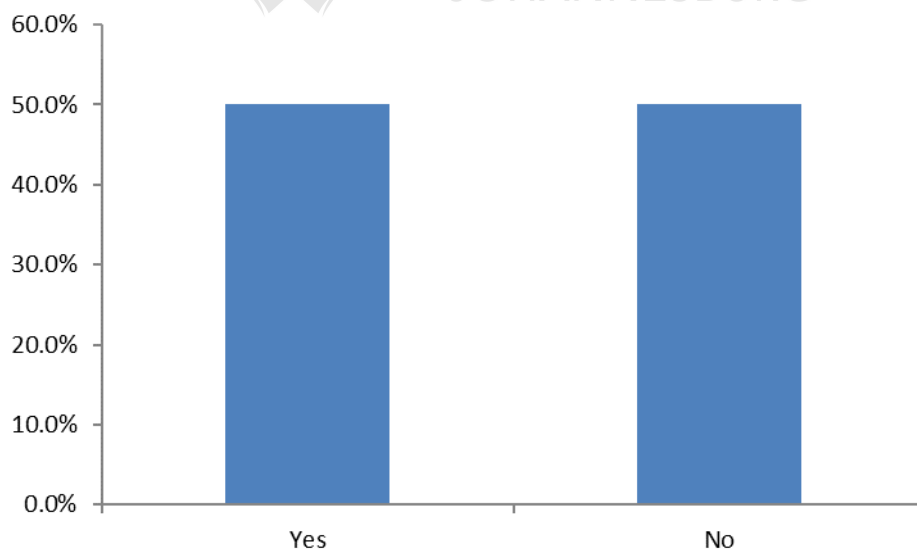


Figure 4.8 Preparedness plans

Half (50%) of the respondents replied in the affirmative, while the rest (50%) said *No*.

4.4 Section 2: Collaboration

Question 10: Does your organization collaborate with other agencies during relief operations? If yes, who have you collaborated with?

The result to question 10 is presented in Figure 4.9 and Figure 4.10, Figure 4.9 shows if collaboration with other agencies is practiced or not, while Figure 4.10 goes further to indicate which organizations or agencies the respondent have worked with.

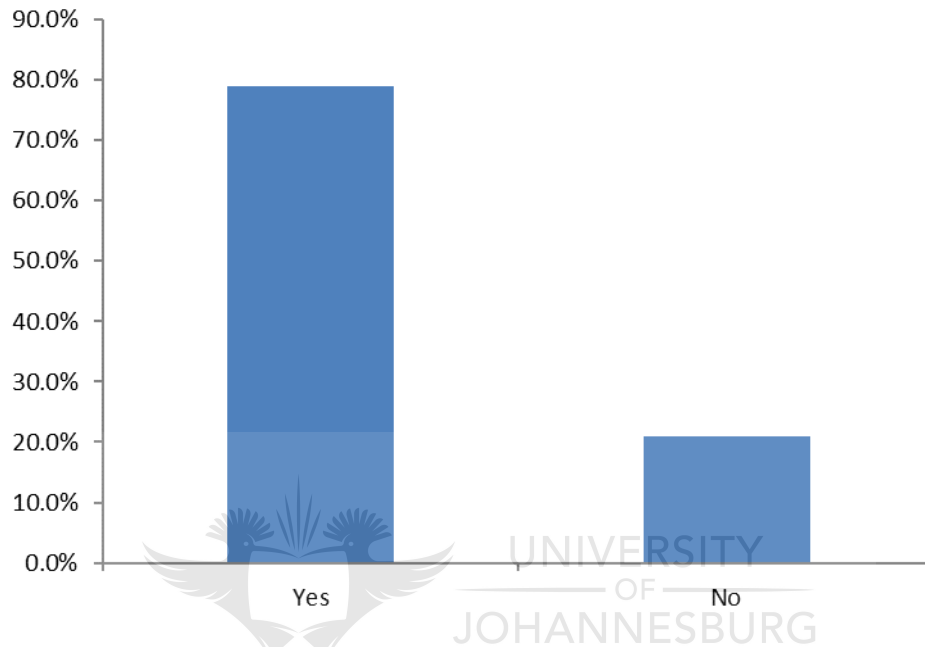


Figure 4.9 Collaborative working

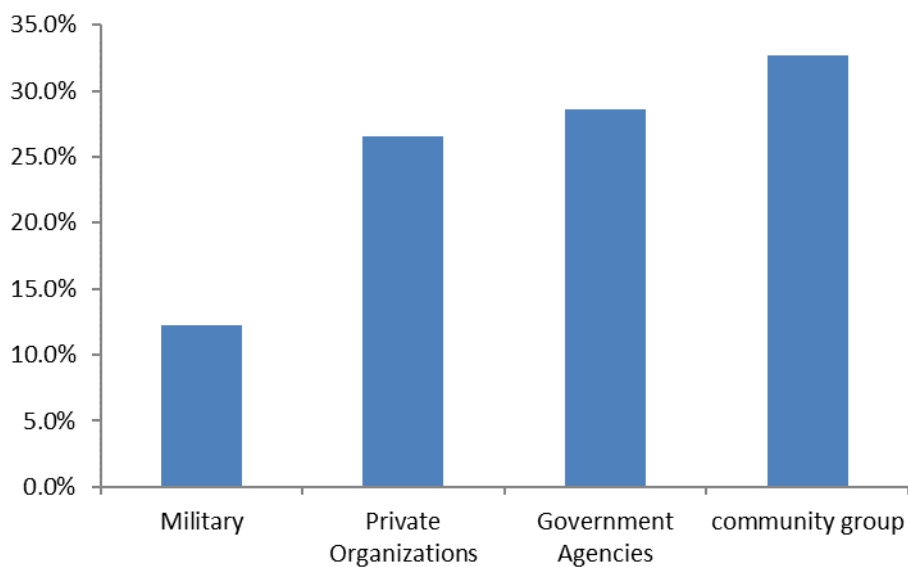


Figure 4.10 Organization collaborated with

The results show that 79% of the response was *yes*, and 21% was negative (Figure 4:9). Out of the group of the respondents who said “*Yes*”, 12% have collaborated with the military, 26% with the private sector, 29% with implementing partners (NGOs) and the majority (33%) collaborated with local community groups (see Figure 4:10. The result shows there is strong partnership between aid agencies and the local community. This can ensure better assessment of needs, according to Long and Wood (1995), when local leaders are consulted and involved in the relief operation; they will take personal interest in its success.

Question 11: please indicate on the scale your view on collaboration during humanitarian operations?

Table 4.2 shows a summary of the result of the above questions, which contains statements related to the important factors with collaboration.

Table 4.2 Statements relating to collaboration

	Statement	Mean	Rank
10.1	Collaborating with other aid agencies in setting up supply chain can lead to improvements?	3.72	4
10.2	Closer relationships can break down barriers?	3.84	2
10.3	Collaborating with other agencies simplifies operations?	3.78	3
10.4	Collaboration with another agency leads to better quality of service?	3.94	1

Given that the mean scores for all the questions presented is greater than 3.00, the respondents can be considered to agree more with the statements than they disagree with it. Therefore, this shows that the respondents believe that closer relationships can break down barriers, increase effectiveness, simplify operations and lead to better quality of service.

4.5 Section 3: Information systems (IS)

Question 12: How will you describe the quality of the Information system in your organization?

Figure 4.11 describes the views of the respondents with regards to the quality of their organizations information system setup.

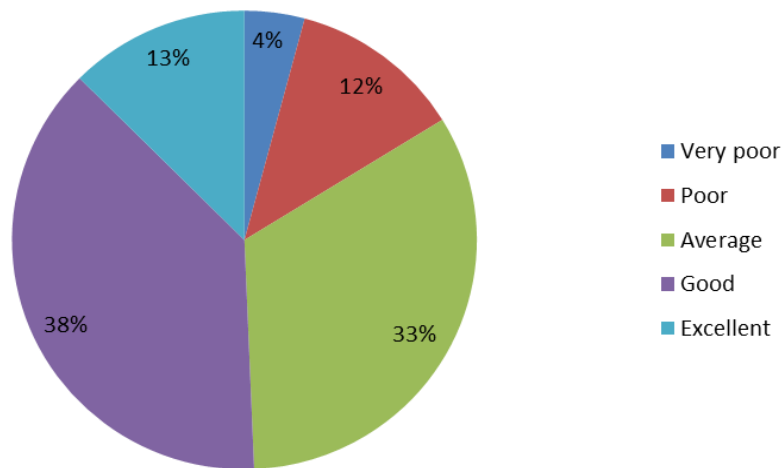


Figure 4.11 Information systems

16% of respondents reported that the quality of their information system were either very poor or poor. However, 71% reported that their information system is average or good, while 13% said their Information technology was excellent. This means that the majority of the respondents consider their organization as having a good information system in place.

Question 13: Please indicate which of the following Information system is available to you?

The respondent were asked to indicate from a list of items which systems were available to them, for use, their responses is shown in Figure 4.12.

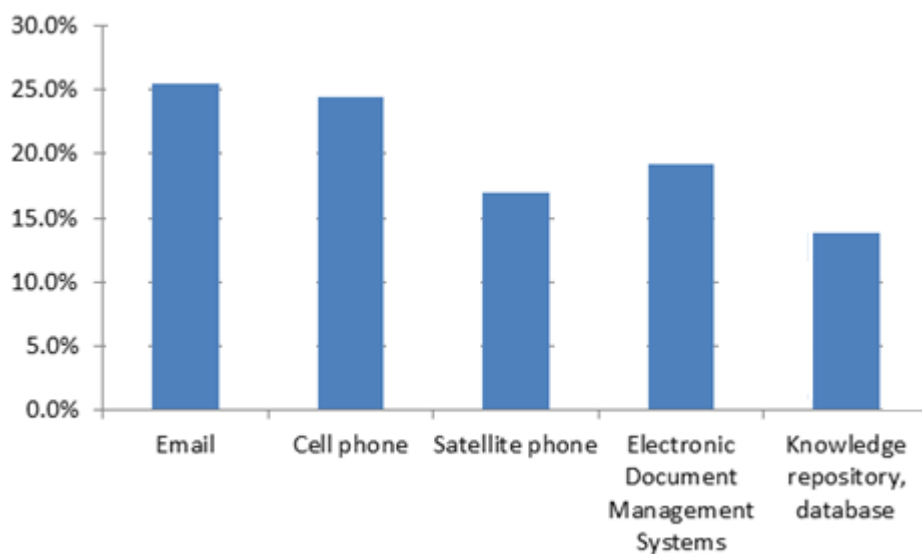
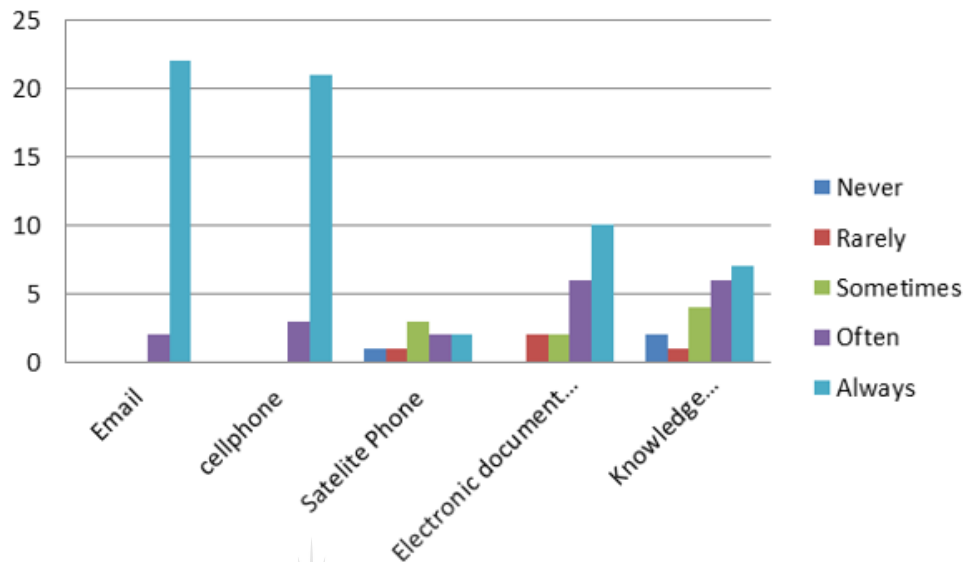


Figure 4.12 Information system availability

25.5% said they had access to emails, 24.5% said cell phone are available to them, 17% have satellite phones, 19.1% of the respondents said that they have electronic document management system (EDMS) and lastly only 13.8% have access to a knowledge repository or database.

Question 14: Please indicate, the frequency of use of the available IS tools?



Statement	Mean	Rank
Email	4.92	1
Cell phone	4.88	2
Satellite Phone	3.33	5
EDMS	4.20	3
Knowledge repository	3.75	4

Figure 4.13 Frequency of use

According to the result (see Figure 4.13), emails are the most used, over 90% of the respondents use emails always, resulting in a high mean score of 4.92. Cell phone come next with a mean score of 4.88, electronic document management system (EMDS) follows with a score of 4.20, knowledge repository/database have a score of 3.75 and the least most used IS tool is the satellite phone with a score of 3.33.

Question 15: have you experienced any communication problems when carrying out field work?

Figure 4.14 shows the responses given with regards to any communication issues experienced by the respondents when conducting field work.

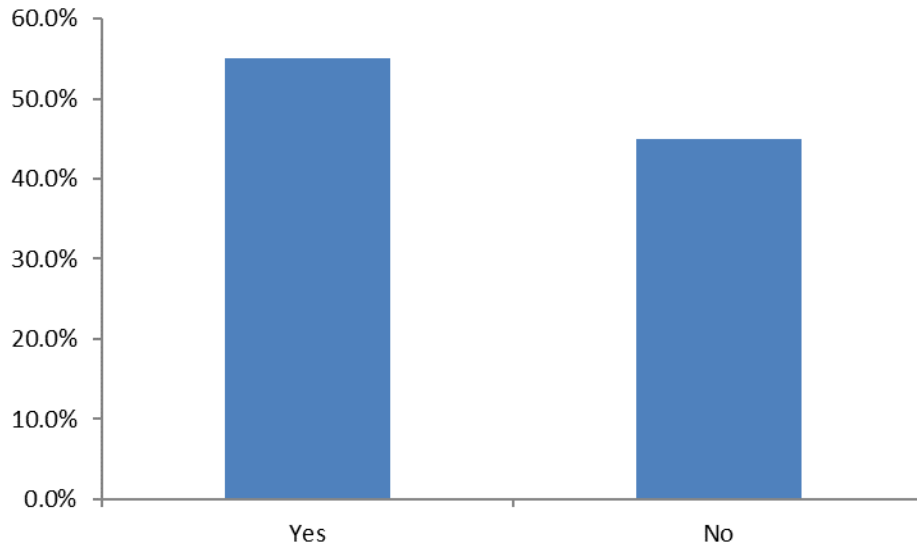


Figure 4.14 Analyses of communication problems encountered during field work

Most of the respondents (55%) reported that they have experienced communication problems in the field, while only 45% said “No”.

Question 16: How do you track goods and services in your organization?

Figure 4.15 presents the level of automation employed in tracking and tracing of goods and services.

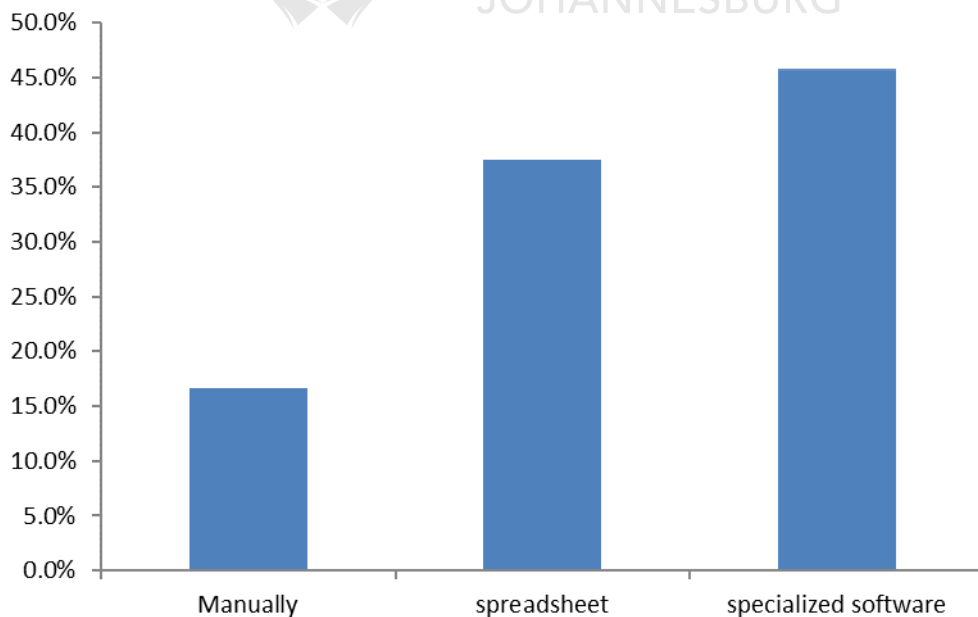


Figure 4.15 Mode of tracking and tracing

The response shows that 46% of the participants use specialized software for tracking and tracing, 38% use spreadsheet and only 17% of the participants reported that goods and

services are manually tracked and traced. The results shows more advance system for tracking and tracing are being used.

4.6 Section 4: Resource Mobilization

4.6.1 Human Resources

Question 17: The organization is well staffed with full time employees? If No, why not?

Figure 4.16 shows the results obtained, when respondent were asked their view on the employment situation in their organization, in terms of employment of full time staffs.

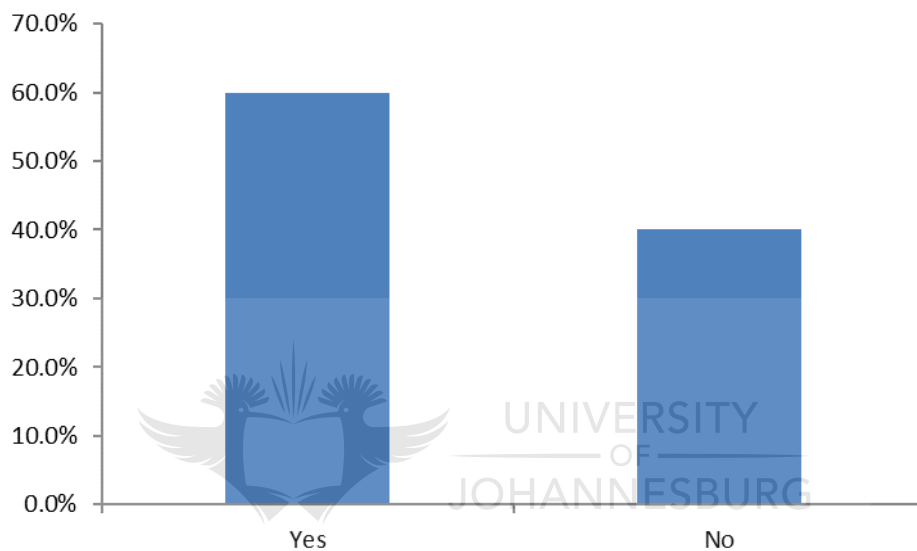


Figure 4.16 Employment of full time staff

The survey found that 60% of the respondents said yes, that their organization was well staffed with full time employees. The other 40% said no and suggested that the reason for being understaffed was because they didn't have enough funds to employ more staffs.

Question 18: Employees are provided with adequate training? If yes, what kind of training have you had?

When asked about the level of training they receive, the results show that majority of the respondents (55%) said that the training they received was inadequate, while the rest (45%) reported that training was adequate (see Figure 4.17)

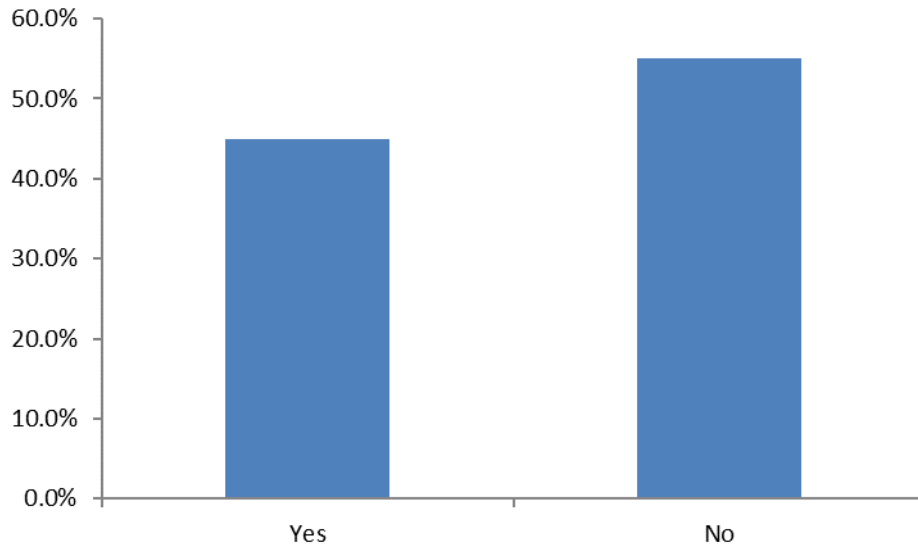


Figure 4.17 Level of training provided

Furthermore, when asked to describe the type of training received, the response varied amongst the participants, a number of them indicated that they had received supply chain management and IT related training. However, the participants also listed other forms of training, such as: emergency response training; security and financial management; health and safety; fire fighting; first aid; health care and social services training; project management; business model and strategic leadership training.

4.6.2 Funding

Question 19: Who is/are your major donors?

Figure 4.18 shows the main sources of funding and donations available to the respondents' organizations.

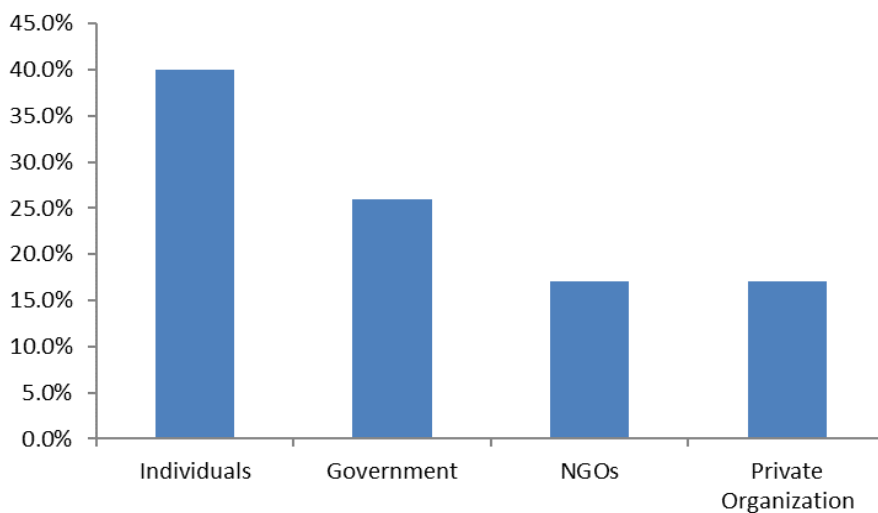


Figure 4.18 Major donor

40% of the respondents indicated that individuals are their biggest donors, the government is the second largest sponsor with 26%, NGOs and private organizations come third with 17% each.

Question 20: Do donors tag their donation to specific spending targets?

Figure 4.19 shows the result of question 20, which relates to earmarking of funds.

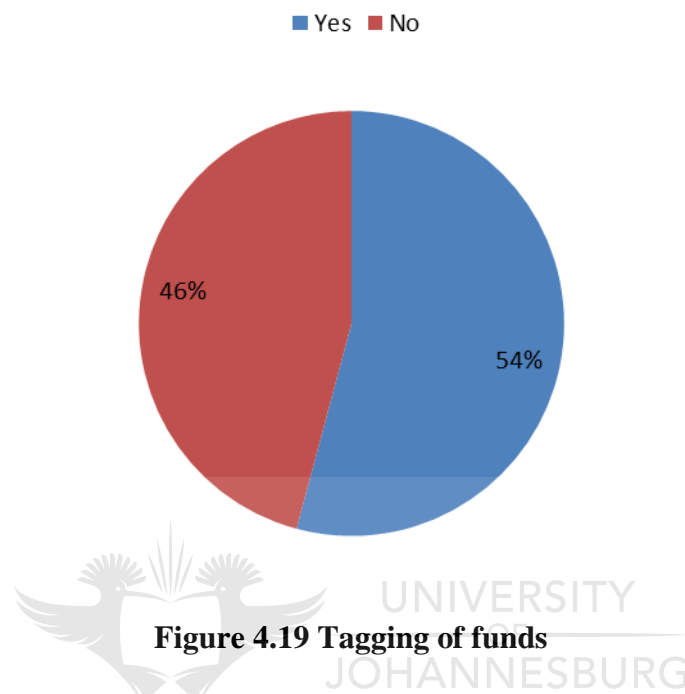


Figure 4.19 Tagging of funds

More than half (54%) of the respondents reported that the donors specify how funds need to be spent, while 46% of the respondents said *No*.

Question 21: Are funds always available when it is required? If No, how did it affect operations?

When asked about the availability of funds, Half (50%) of the respondents answered *Yes*, while 50% said *No*, funds were not always available when needed (see figure 4.20). Further analysis of the data revealed that the respondent (50%) who answered “yes” worked for international NGOs, while those that said know where from Local NGOs.

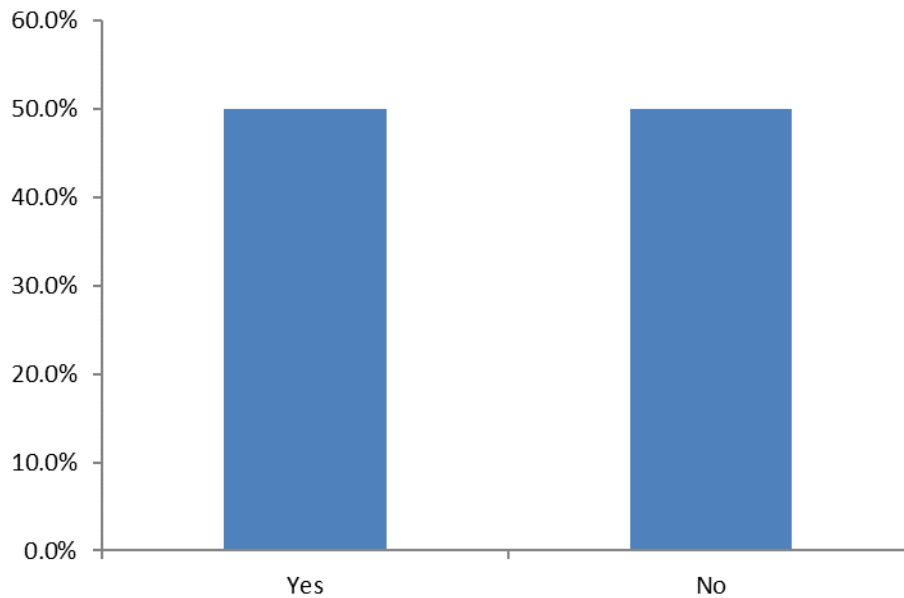


Figure 4:20 Availability of fund

All but one of the respondents who answered “*No*” commented on the impact of lack of inadequate funding. Majority of respondents stated that work is either delayed or stopped, other comments provided include; inability to employ more staff, inability to meet the financial commitment for the day to day running of the organization (that is, stocking up of essential relief materials, paying salaries, and other necessities needed for developmental activities).

4.7 Section 4: Knowledge sharing

Question 22: Is there anyone responsible for sharing and managing the knowledge in your organization?

Figure 4.21 shows which of the organizations have a staff responsible for managing knowledge in the organization.

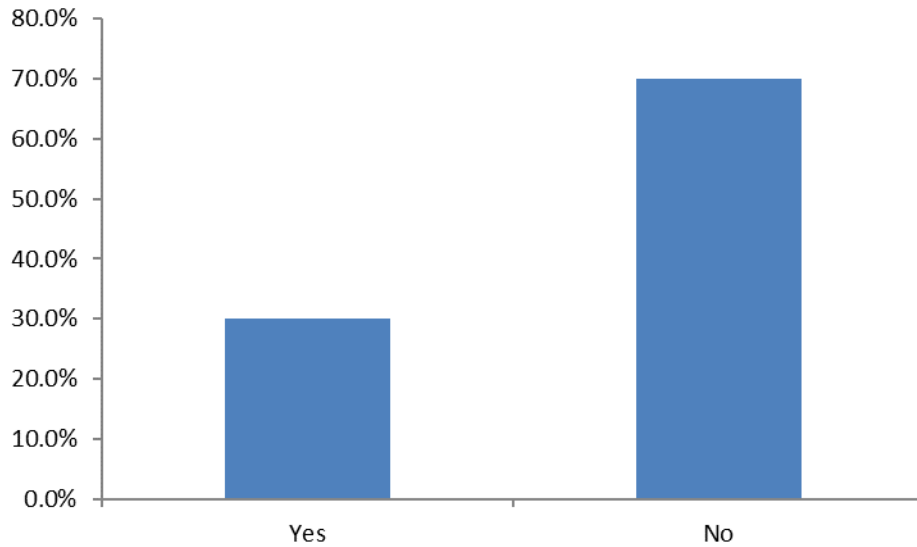


Figure 4.21 Analyses of question 22

Majority of the respondents (70%) said *No*, while 30% said *yes*.

Question 23: Please indicate how frequently the following knowledge is shared/exchanged with your colleagues?

When asked how frequently knowledge was shared, most respondents indicated that sharing knowledge with colleagues through the use of reports/official documents is the most common form of knowledge sharing (see Figure 4.22). The results show in general knowledge sharing is being practised in the respondents' organizations.

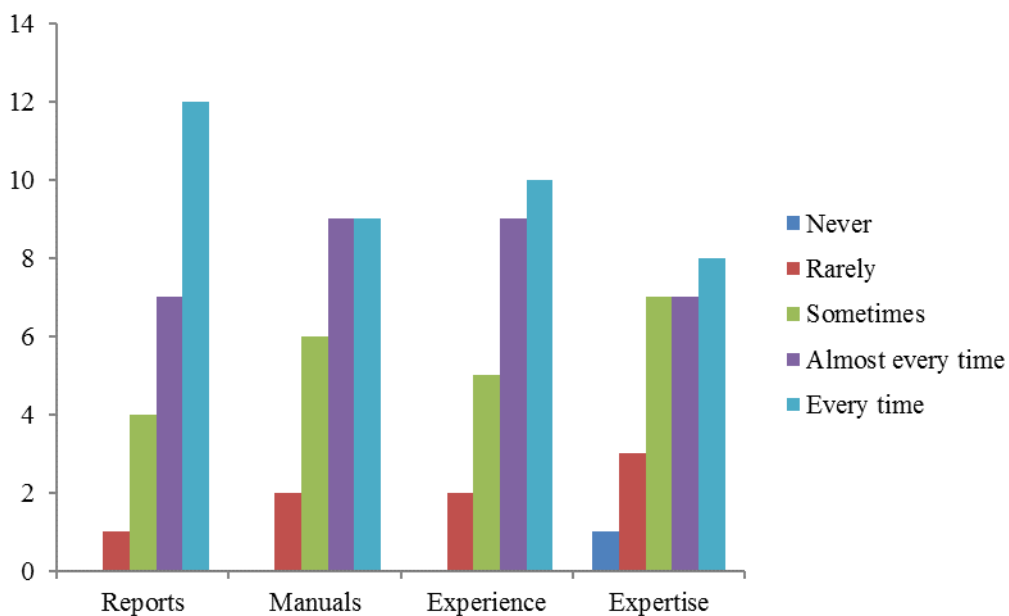


Figure 4.22 Frequency of knowledge sharing

Question 24: How will you describe your proficiency of sharing knowledge with others?

Figure 4.23 present the result of the survey on the level of proficiency of the respondents with regards to their capacity to share knowledge with their colleagues.

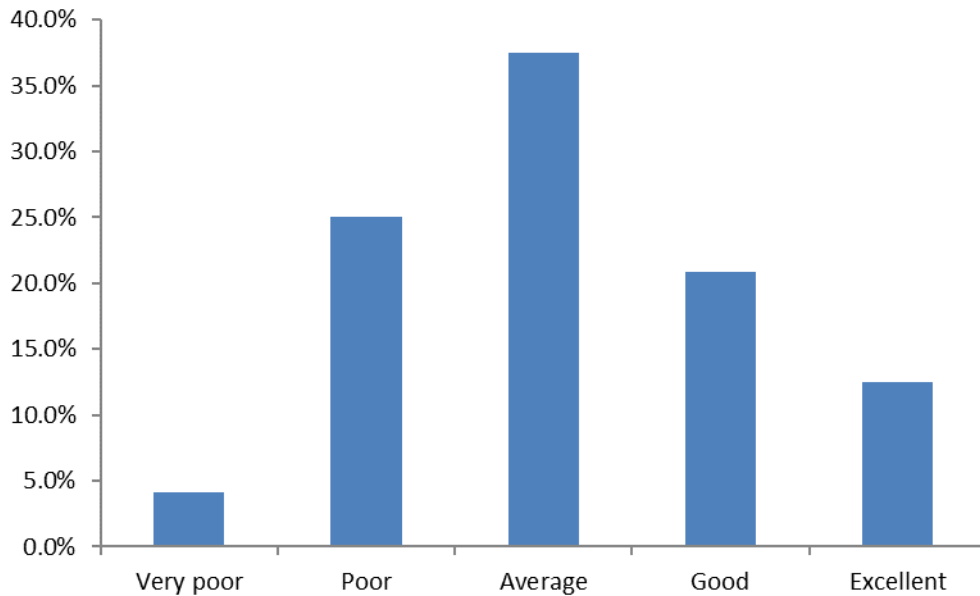


Figure 4.23 Proficiency at sharing knowledge

Majority of the respondents (37.5%) rated themselves as average, 25% stated that they were poor at sharing knowledge, while 21% indicated that their ability to share knowledge was good, 4% of the respondents rated themselves as very poor and only 13% thought they were excellent at it.

4.8 Monitoring and Evaluation

Question 25: Do you have a process for reporting project activities?

When asked if the respondents have a method for reporting activities, majority of them said “Yes” (see Figure 4:24).

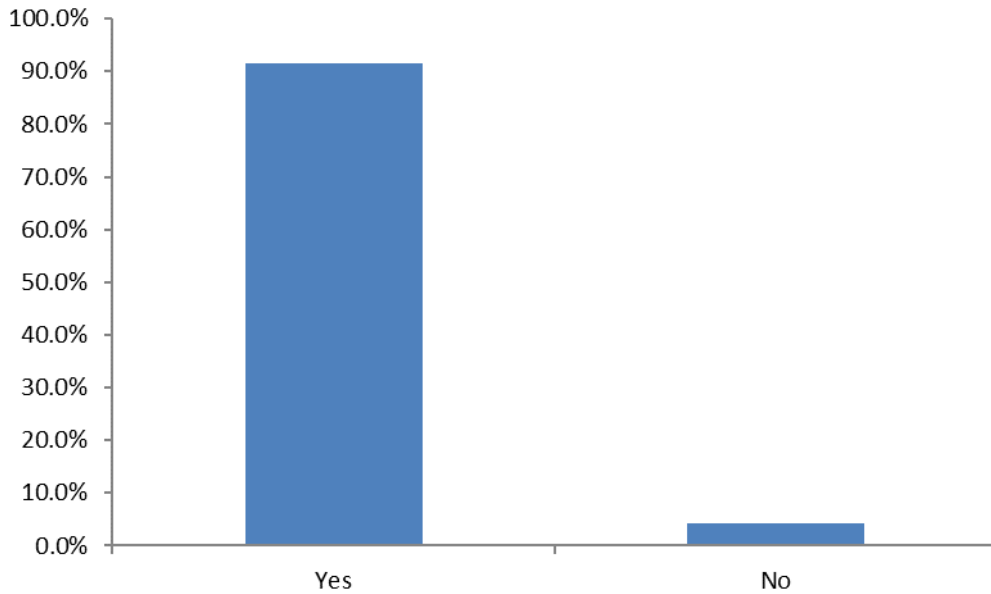


Figure 4.24 Process used for reporting activities

The results from Figure 4:24 shows that, 22 respondents (91.67%) say that they have processes for reporting their activities, one respondent (4.17%) said “No” and one of them did not respond.

Question 26: Do you have a system for evaluating the effectiveness of your supply chain? If yes, please describe the system used in evaluating the effectiveness of your supply chain?

Based on the result shown in Figure 4.25, 12 respondents (50%) said that they don’t have a system for measuring the effectiveness of their supply chain, 11 said (46%) that they do have a system in place to do that and 1 respondent did not respond.

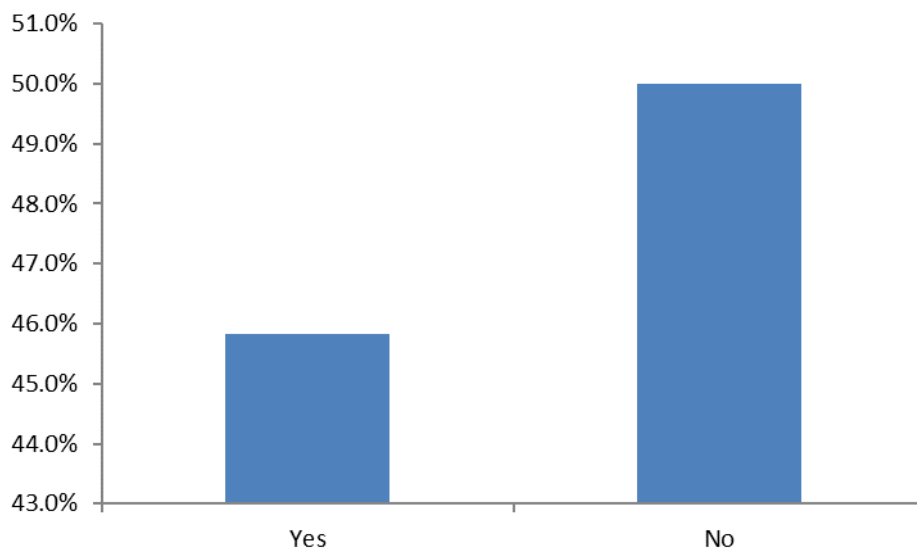


Figure 4.25 System for evaluation supply chain effectiveness

The following were the answers provided by the participants who responded by saying “Yes”: Documenting all transactions with the suppliers; I am not directly involved but I do know it involves regular reporting and analysis of budget versus the usage and usage trends; Review of timelines, dates of deliveries versus date of order; We have conducted third-party studies on the use of the supply chain and we are currently in the process of conducting a meta-review of the emergency projects that include our Gifts-in-Kind; We monitor our process via excel database at the moment; We are not in a position yet to evaluate the effectiveness of our supply chain since it is still in its developmental stage, We work on feedback from Disaster Risk Management as well as the Government on big projects completed.

Question 27: Do you have a system for providing accountability to donors? If yes, Please describe the system used for donor accountability.

Figure 4.26 shows the results obtained for question 27 which deals with the availability of accountability systems and what systems are being used.

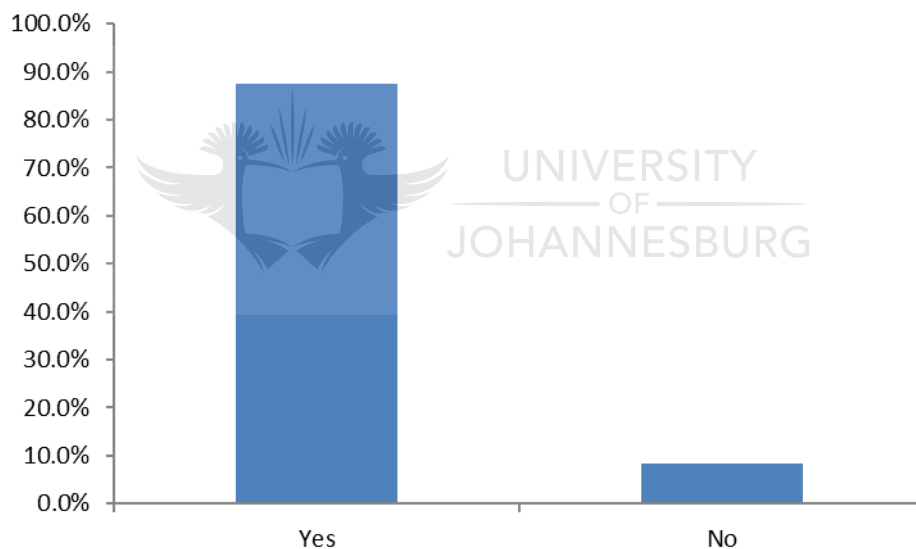


Figure 4.26 Donor accountability system

88% said yes, 8% said “No” and one respondent did not provide an answer. The following are the systems provided by the participants who said *Yes*: monthly and annual reports; information system such as *mango's network system*; audited documents that are made available on our website; donor register; donors are sent reports on regular intervals; records are made of individual/ family that distribution is given to and this record is forwarded to head office; financial statement and project reports; monitoring and evaluation (M&E) system, reporting frameworks; monthly reports; narrative reports, expenditure reports and statistics are provided according to the time set by donors; quarterly progress report as

required by donors and newsletters; donor meeting; annual report which describes the activities of the organization and also provides a copy of the balance sheet on request.

Question 28: Who is/are your major sources of information in accessing the needs of your beneficiaries?

The responses varied by participants but most of them indicated that the beneficiaries and community members was their main source of information. Other sources of information provided include: Assessment made by local and international NGOs; community mobilization teams/field workers; and the media.

Question 29: Based on the following attributes, how would you rate the information used in managing your supply chain priorities?

Table 4.3 shows a summary of result of three variables related to managing supply chain priorities.

Table 4.3 Managing supply chain priority

	Mean	Rank
Quality of information	3.91	2
Timeliness of information	2.70	3
Value of Information	3.96	1

Majority of the respondents said that the quality of information and the value of information used in managing their supply chain priority were either good or average, hence the reason for the high mean score both questions got, but on the other hand they rated the timeliness of the information obtained very low, resulting in a mean score of less than 3. Which indicates a better system needs to be put in place to ensure timely information transfer.

4.9 Summary

This chapter presents the findings obtained from the survey. The statistical analysis of data collected from the survey was carried out using SPSS. Frequency tables, standard deviations and pie charts are examples of mediums used in presenting the findings. The next chapter presents the results, discussions and also describes ways whereby business logistics practices can be incorporated in the humanitarian sector.

CHAPTER 5 DISCUSSION AND RECOMENDATION

5.1 Introduction

This chapter analyses the results from the survey and provides recommendations based on the analysis. The questionnaire consist of six sections, hence the results were analysed and described accordingly. Finally, it discusses ways in which the private sector can influence development in the sector. That is, what models or solutions can be adopted or adapted from the private sector to improve humanitarian logistics.

5.2 Demography and Organization Information

The responses showed that the respondents covered a wide range of positions, such as: logisticians, volunteers, project administrators, project managers, board members, CEO, director, coordinator, etc. The educational levels of the respondents varied but majority (67%) of them have at least an undergraduate degree. 58% of the respondent were female, while 42% were male respondents. Majority (11 out of 24 participants) were over 46 years of age and also majority of the respondents (46%) have been working in their organization for more than 6 years. Being well-prepared for an emergency increases an organization capacity to effectively respond to it, but data from the research shows that most of the organizations do not have a preparedness strategy in place. Only 50% of respondents said that they have disaster or emergency plan in place in their organization.

Majority of respondents to this survey indicated the importance of logistics management. They agreed that logistics management is essential for project success, their assertion is based on experiences gathered on humanitarian projects over the years but unfortunately only 50% of the respondents said that they have a logistics professional employed in their organization.

5.3 Collaboration

The findings show that most of the respondents (79%) have collaborated with other organizations. The respondents agreed that collaboration is vital, can break down barriers, improve their capacity to respond effectively to an emergency and lead to better quality of service. NGOs and community groups are the organizations most collaborated with (29% and 33% respectively), while collaboration with the military is the least (12%). This is a good trend, as one benefit accorded to working with locals is that they are a good source of information on local culture, terrain and needs of the affected area. According to Long and

wood (1995), logistics plans should be prioritized based on information coming from local persons. However, effort needs to be made to facilitate collaboration between NGOs and the military, as this kind of relationship will be beneficial, because the military have access to advance communication and logistic assets that could be made available to them in times of crises.

5.4 Information Systems

With regards to information systems adoption and use within the sector, the survey indicates that majority of the respondents (71%) reported that their organization have a good information and communication systems in terms of infrastructure. Emails and cell phones are the most available and frequently used system in their organization, while less than 50% of the respondents have a satellite phones and the least available system is database or knowledge repository. Also, the results show that 55% of respondents reported that they experience communication problems in the field despite having said they have good information systems. This is indicative of a lack of advance communication system that can be used in areas where cell phones or email access is restricted or unavailable.

A departure from literature was noted in tracking and tracing of goods, this study findings differs from Russell (2005). Majority of respondents (83.3%) said that their organization either make use of specialized software solutions or the Excel spreadsheet[®] for tracking and tracing, and only a few (16.7%) still manually track and trace goods. According to Van der Laan et al (2007), the use of information systems improves effectiveness.

5.5 Resource Mobilization

Resource mobilization in humanitarian operations is a major challenge. The results show that 60% of the respondents believe that their organization is understaffed and only 55% say they have access to adequate training. This indicates that man power and capacity building is lacking. Funding remains one of the biggest constraints to aid delivery, 50% of the respondents reported said that they do not have access to adequate funds when needed, and also when asked about earmarking of funds, majority (54%) of the respondents said that donors tag their funds to specific objectives. Research shows that when funds are used as prescribed by donors (Forte, 1994), it could lead to a mismatch of aid materials being offered and that which is most urgently needed.

Furthermore, the results also show that individuals are the largest donors to humanitarian organization, followed by government and third major contributors are NGOs and private organizations. Humanitarian organizations should direct more of their appeal for funding to private organization.

5.6 Knowledge sharing

In the humanitarian world, knowledge and experience has been said to be more important than project plans, although the survey indicates that knowledge sharing is being practiced but a lot still needs to be done. 70% of the respondents indicated that they do not have any one responsible for knowledge management in their organization. The results also show that the most common method of sharing knowledge is through reports, while experience is the next most shared knowledge.

In terms of their ability to share knowledge, majority of respondents say their ability to do that is average, thus training in knowledge management and sharing is required and also investment in Information technology that can facilitate knowledge management is essential (i.e. the collection and synthesis of information).

5.7 Monitoring and Evaluation

Differing with the literature review statement with regards to donor transparency and accountability, the results show an improved donor and accountability through the use of various reporting and audit systems adopted by these humanitarian organizations. The findings agree with Van Wassenhove (2006) remarks that humanitarian organizations are under increased pressure to show donors that they are using the donations they received to meet the needs of the beneficiaries.

The results also show that majority of the respondents (over 85%) said that they have systems for reporting their activities and also for providing accountability to the donors. However, only about 50% of the respondents said that they have a system for evaluating their supply chain. Furthermore, the survey reveals that in terms of managing supply chain priority, the respondents agree that the quality and value of the information they received is quite good hence, having a high mean score of 3.91 and 3.96 respectively but with regards to timelessness of information, a low mean score of 2.7 was obtained. According to the findings of this study, the results show that focus on timely information passage is of great importance in the surveyed humanitarian organizations.

5.8 Recommendation

It is evident that without logistics, humanitarian relief operations cannot be done efficiently. Even though there is an increasing appreciation of logistics in the humanitarian sector, it is vital for aid organizations to implement humanitarian improvements with logistics having a core and strategic function. This can be done through early inclusion, coordination of logistic professionals in the humanitarian assistance department or with donors, investing in advanced information systems and forging closer ties with the private sector. Based on the challenges identified from the literature, a review of private sector logistics approaches will be explored in order to find solutions that could be implemented in part or in its entirety.

In order to improve the effectiveness of relief operations, Aid agencies in South Africa need to develop an emergency plan of action. Aid workers should encourage the creation of urban response strategies and resilient links between humanitarian and development sectors to deal with the root cause of the various factors that makes the society more vulnerable to crises as other possible priorities.

Humanitarian organization can benefit from benchmarking their operations with similar organization like it is done in the private sector. Benchmarking is the process of assessing and matching one organisation against another in order to identify and carry out improvements (Andersen and Pettersen, 1996). Doyle (1996) backs and promotes using benchmarking to improve performance in emergency management. However, humanitarian organizations should be aware that benchmarking another organization has its pros and its cons. In terms of benefits, matching an organization with a similar organization has the potential of improving both knowledge of operating processes and advancement in certain technological areas. Caution should be taken, when benchmarking, such that only organization which perform similar operation on the same level are selected. There are drawbacks of making improper appraisal, for instance taking cost-reduction and profits generating lessons from the private sector.

Investment in advance communication and IT systems is needed in Humanitarian organizations. Equipping field workers and all vehicle used with communication equipment that can function in areas where cell signals are scarce or non-existent is imperative. Furthermore, in the private sector, information technology has been used to improve inter-organizational coordination (Sanders, 2008). Vickery et al. (2003) reported that improved inter-organizational coordination can positively impact the performance measure of some

selected organization for example, customer service, and cost of production and delivery time. IT developments in the private sector, such as Enterprise Resource Planning (ERP), Vendor Managed Inventory (VMI), Collaborative Planning, Forecasting, and Replenishment (CPFR) are examples of systems used to improve system wide performance, these Information technology systems enable businesses to share information, money and use method of collaboration to optimize their logistic task. These type of systems can be adopted or adapted for use in the humanitarian sector. Nevertheless, it is imperative that humanitarian organization take into consideration when implementing information systems with their partners the constantly changing business environment.

The ultimate purpose of a supply chain network is to facilitate the procurement of resources like; personnel, equipment and supplies and deliver it to the end user. Aid agencies need to deal with their lack of resources and capacity challenges, in order to succeed and become more competitive. The resource based view (RBV) of an organization claims that organizations must have access and develop special, invaluable, unique and irreplaceable resources and skills (Barney, 1991). Researchers have reported that private companies have the capacity and resources to address the resource requirements of organizations involved in a social cause when compared to individuals, government and other NGOs (Porter and Kramer, 2002; Hess et al., 2002). Thus, aid agencies can increase their speed, and lower their operational cost, flexibility and accuracy, by taking advantage of the available resources that the private sector organizations could provide.

5.9 Summary

This chapter presented a discussion on the analysis of data collected, also business logistics models that could be suitable for adoption or adaptation by humanitarian organization was discussed and finally recommendations were given.

CHAPTER 6 CONCLUSION AND FURTHER RESERACH

6.1 Introduction

This chapter is a summary of the preceding chapters of this dissertation. It tries to provide final notes about humanitarian challenges and improvements made by humanitarian organizations within their operational environment over the years. It also provides some recommendations for future work.

6.2 Conclusion

Logistic management is vital to logistics managers in the humanitarian sector because of the money-saving and operational effectiveness that can be achieved through appropriate planning, collaboration, use of improved information systems and holistic analysis of all the components that make up the supply chain.

The aim of this study is to identify the key challenges faced by humanitarian organizations and also to assist in building the concept that logistics model and practices from the private sector can be used in the humanitarian sector. The expectation is that this study will improve the way aid agencies do business. To answer the research questions identified, this study explored the context in which aid agencies operate, their challenges and it tries to discover the type of logistics and organizational strategies humanitarian agencies need to implement in order to successfully and efficiently respond to the needs of the beneficiaries.

Humanitarian organizations are inhibited by various factors as identified in the literature that adversely affect aid delivery, such as lack of funds, unlike the commercial sector which has access to and the flexibility of spending money, where money is invested in research, capacity building and other developmental activities. Based on the survey result, 60% of respondents say that their organizations is understaffed, and when asked about their impression the level of training they received 45% of participants said training received as not adequate.

Furthermore when asked about funding, 50% of the respondent reported that they do not have access to adequate funds and 54% said further said that donors often time tag their funds to specific projects. These findings agree with the literature in terms of manpower and funding challenges in the humanitarian sector (Thomas, 2003a). Considering these findings, it is the author's opinion that unavailability and tagging of funds presents the greatest hindrance to effective aid delivery. Addressing this crucial challenge is necessary if humanitarian

organizations are to achieve significant progress in the coming years. The availability of adequate funds and the ability of humanitarian organizations to spend it freely on several key areas that would ultimately improve their organizational capacity and capability, as some of the respondent indicated from the survey that lack of funds affect their organizations cash flow, impedes their ability to employ and train more staff and also affect their ability to invest in other developmental activities that could improve their capacity to effectively carry out their mandate.

Having said that, some progress has been recorded, efforts have been made in the areas of collaboration, accountability, and more importantly logistics management in the sector has gained prominence. The results show aid organizations are willing to collaborate with one another (79% collaborate versus 21% that do not), majority of the respondents (85%) indicated they have a system of providing accountability to donors, while most of the participants agree that logistics management is essential for project success, but unfortunately only 50% said that they have a logistic professional employed in their organization. According to Oloruntoba and Gray (2006), the problems facing aid agencies in the logistics department is the formal qualifications of logistics personnel.

More still needs to be done in the areas of preparedness, knowledge management, investing in better communication systems and collaboration with the military and the private sector, as the results show that 50% of respondent indicated that they do not have an emergency plan, in terms of knowledge management the results show that majority of the responses obtained indicate that no one is responsible for managing knowledge in the organization and most of the organization do not have a database for storing information and also employees are not proficient at sharing knowledge. Furthermore, collaboration with the military and private organization is very low (12% and 27% respectively). As indicated earlier the military have accesses to advance logistics capabilities that could prove useful in large scale disaster scenarios, while a stronger partnership with the private sector will allow humanitarian organizations leverage on their core competencies to improve their operations.

The impact of humanitarian challenges is not a problem of the future but one of the present and one that we will live with. The humanitarian sector may need to widen their views of risk and vulnerability, re-evaluate what fuels a humanitarian crisis and, consequently, what kindles a humanitarian response.

6.3 Further Research

A coordinated effort is needed to reduce the vulnerabilities that follow humanitarian logistics challenges. In meeting this objective, the dissertation has identified from the literature the barriers affecting humanitarian aid delivery and some recommendations have been offered based on methods used in the private sector. This study is an essential first step towards an extensive use of logistic management practices in the humanitarian sector. Thus, can be viewed as a starting point for more research in this area and offers skilled logistician a chance to practice their trade in the humanitarian arena.

The scope of this study is limited. It only provides a summary of relief logistics with focus on emergency response, but many humanitarian agencies are involved in other types of humanitarian activities, such as prevention and recovery, these activities are often longer term and require much more resources. This study also, does not investigate the impact of lack of security, preparedness or the technology suitability on the response ability of aid agencies nor the type of humanitarian-business partnership necessary for a symbiotic relationship. Further study in any of these areas will help to further develop and evolve the concept of humanitarian logistics as an interdisciplinary field.



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APPENDIX

FACULTY OF ENGINEERING AND BUILT ENVIRONMENT
DEPARTMENT OF MECHANICAL ENGINEERING SCIENCE

Dear Madam / Sir,

Re: Assessment of Logistics Management in Aid Agencies

This survey is part of a research project aimed at meeting the requirements for an **M.Eng in Engineering Management** in the Department of Mechanical Engineering Science, Faculty of Engineering and Built Environment, University Of Johannesburg, South Africa.

This aim of the survey is to learn more about your opinion and/or your experience with regards to logistics management in humanitarian organizations. The questionnaire focuses on factors that humanitarian organizations require to operate an effective and efficient humanitarian supply chain.

An expected outcome from the research is recommendations that will assure continuous improvement in the sector.

Kindly, complete the accompanying questionnaire. Please, note that the confidentiality of your response is assured.

Thanking you in anticipation of your response.

Yours faithfully,

Bayode, A

Masters Candidate

Please answer the following questions by crossing (x) in the relevant block or writing down your answer in the space provided.

SECTION 1: Organization and Personal information

1. Type of NGO Local International
2. Gender Male Female
3. Age Less than 25 25 - 35 yrs 36 - 45 yrs
 46 - 50 yrs More than 50 yrs
4. Highest Qualification
5. How long have you been working in the organization?
 0-1yrs 2-4yrs 4-6yrs More than 6yrs
6. Title/Position
7. Are there any logistics professional employed in the organization?
 Yes No
8. Please indicate your level of agreement or disagreement to the statements below.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Logistics and supply chain management is considered critical for project success in this organization.					

9. Does your organization have disaster/emergency preparedness plan in place prior to the onset of the disasters to improve capability and capacity to respond to emergencies?

SECTION 2

Collaboration: refers to the process in which two or more organizations work together to achieve a goal.

10. Does your organization collaborate with other agencies? If yes, who have you collaborated with?
 Yes No

If yes, which of these organizations have you worked with?

- Military Private Organizations
 Other NGOs Members of the community

11. Please indicate on the scale your view on collaboration during humanitarian operations?

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
11.1	Collaborating with other aid agencies in setting up supply chain can lead to improvements?					
11.2	Closer relationships can break down barriers?					
11.3	Collaborating with other agencies simplifies operations?					
11.4	Collaboration with another agency leads to better quality of service?					
11.5	Collaborating with other aid agencies in setting up supply chain can lead to improvements?					

SECTION 3

Information Technology (IT) refers to a computer system, equipment and software which are used in the organization to facilitate operations.

		Very poor	Poor	Average	Good	Excellent
13	How will you describe the quality of the IT system in your organization					

14. Please indicate which of the following IT tools are available to you and how frequency you use them

	Available		If 'Yes', The IT tool is available?				
	No	Yes	Never	Rarely	Sometimes	Often	Always
14.1							
14.2	Email						
14.3	Cell phone						
14.4	Satellite phone						
14.5	Electronic Document Management Systems						
14.6	Knowledge repository, database						

15. Have you experience any communication problems when carrying out field work?

16. How do you track goods and services in your organization? (e.g. relief materials, funds and other forms of donations)? *Please tick appropriate answer(s) from the list below.*

- Manually Spread sheet Specialize software

SECTION 4: Resource Mobilization

A. Human Resources: refers to the individuals who make up the workforce of the organization.

17. The organization is well staffed with full time employees? If No, why not?

- Yes No

18. Employees are provided with adequate training?

- Yes No

If yes, please

describe?

B. Financial Resources



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19. Who is/are you major Donors?

- Individuals Government A private Organization NGOs

20. Do donors tag their donation to specific spending targets?

- Yes No

21. Are funds always available when it is required?

- Yes No

If No, How did it impede your operations?

SECTION 5

Knowledge Management: comprises a range of strategies and practices used in an organization to identify, create, represent, distribute, and enable adoption of insights and experiences.

22. Is there anyone responsible for sharing and managing the knowledge in your organization?

Yes No

23. Please indicate how frequently the following knowledge is shared/exchanged with your colleagues?

		Never	Rarely	Sometimes	Almost every time	Every time
23.1	Reports					
23.2	Manuals					
23.3	Experience					
23.4	Expertise from education and training					

24.	How will you describe your proficiency at sharing knowledge with others?	Never	Rarely	Sometimes	Almost every time	Every time

25. How will you describe your proficiency at sharing knowledge with others?

SECTION 6

Monitoring and Evaluation: refers to processes of monitoring a program and evaluating the impact it has, in order to assess the success.

26. Do you have a process for reporting your activities?

Yes No

27. Do you have a process for evaluating the effectiveness of your supply chain?

Yes No

If yes, please describe the system?

28. Do you have a system or process for providing accountability to donors?

Yes No

If yes, please describe the system?

29. Who is/are your major sources of information in accessing the needs of your beneficiaries?

30. Based on the following attributes, how would you rate the information used in managing you supply chain priorities?

	Very poor	poor	Average	Good	Excellent
Quality of information					
Timeliness of information					
Value of information					

