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PRACTICES & CHALLENGES OF HUMANITARIAN LOGISTICS: THE CASE OF CARE ETHIOPIA

By

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DECLARATION

I, the undersigned, declare that this thesis entitled ‘Practices & Challenges of Humanitarian Logistics: The Case of Care Ethiopia’ is my original work and that I have not previously in its entirety or in part submitted at any university for a degree and all the sources of materials used for the thesis have been duly acknowledged.

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Abstract

Over the years, the number of natural and man-made disasters has increased dramatically and consequently also the need for humanitarian logistics. Thus, humanitarian logistics is highly important to efficiently provide aid to those people in need. Improving humanitarian logistics entails assessing the practice and identifying the major challenges impeding its applications. Thus, the aim this study is to assess the humanitarian logistics practices and challenges of Care Ethiopia. The study used descriptive research design accompanied by mixed method approach to the research. Due to the small size of the target population census survey were applied. In order to collect data from the logistics staffs; 46 questionnaires were distributed to logistic officers, logistic assistant, procurement officers and others. The humanitarian logistics practices of the organization were assessed using the five basic logistics practices; situation assessment, procurement, transportation, warehouse and distribution management practices. Besides, both internal and external challenges faced by the organization during its humanitarian operations were identified. The findings of the study indicate that situation assessment, warehouse and distribution management are practiced to moderate and greater extents whereas the procurement and transportation practices need more emphasis. Challenges related to infrastructural condition, accessibility, security and restricted use of technology were identified. The researcher recommends provision of training and experience sharing platforms for employees, adopting pre-positioning of relief supplies, using various transportation optimization models, encouraging collaboration among various humanitarian actors and organizations, working with government to improve infrastructural condition in disaster prone areas and using reliable means of transport.

Key words: Disaster, Humanitarian logistics

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ACRONYMS

CARE	Cooperative for Assistance and Relief Everywhere
ERCS	Ethiopian Red Cross Society
HL	Humanitarian Logistics
HLIS	Humanitarian Logistics Information System
HRO	Humanitarian Relief Organizations
IFRC	International Federation of Red Cross
IT	Information Technology
NGO	Non-Governmental Organization
OCHA	Office for the Coordination of Humanitarian Affairs
PAHO	Pan American Health Organizations
RFID	Radio Frequency Identification
SPSS	Statistical Package for Social Sciences
UNHCR	United Nation High Commissioner for Refugees

CHAPTER ONE

INTRODUCTION

This chapter presents brief description of humanitarian logistics and the role it plays in disaster management. The need for humanitarian logistics in disaster relief operation is also clearly outlined. Besides, this chapter encompasses the research objectives & questions, significance, scope, limitation, and organization of the study accompanied by the definition of key terms.

1.1 Background of the Study

In today's society disasters seem to be striking all corners of the globe, the importance of emergency management is undeniable. Much human loss and unnecessary destruction of infrastructure can be avoided with more foresight and specific planning as well as a precise execution. In a world where resources are stretched to the limit and the question of humanitarian relief seems too often to be tied with economic considerations, better designs and operations are urgently needed to help save thousands of lives and millions of dollars (Haghani & Afshar, 2009). Disasters directly impact economies, agriculture, food security, water, sanitation, the environment and health each year. Therefore, it is one of the single largest concerns for most of the developing nations. Different natural hazard causes varying levels of physical damage to infrastructure with implications for their indirect and secondary impacts (Lone & Subramani, 2016).

Due to climate change and increasing man-made resources, the number of natural and manmade disasters increased significantly. United Nations in 2006 confirmed that natural disasters over the next years become more severe, destructive, and often. Natural disasters killed more than 30 people and caused 244.7 million victims worldwide in 2011. Economic damages from natural disasters were estimated at US\$ 366.1 billion. In Japan, the tsunami and earthquake disaster was the most ever recorded expensive natural disaster, with estimated economic damages of US\$ 210 billion. China was affected by flood in June 2011 and this had affected 67.9 million victims. In Ethiopia (4.8 million), Kenya (4.3 million), and Somalia (4.0 million) droughts and consecutive famines caused many victims (Agarwal & Singh, 2018).

According to Cozzolino (2012), in disaster context, it is important to ensure efficient and effective delivery, such that the appropriate commodities and people reach the victims of the emergency. However, optimizing the logistic performance requires that all the relationships among the actors involved are managed through an integrated approach to efficiently and effectively coordinate inter-organizational performance and maximize efficiency along the entire emergency supply chain. Though logistics is more focused on moving something from a point of origin to a destination, supply chain management mainly focuses on the relationships among the actors that make such movement possible. Thus, logistics and supply chain management are both crucial to properly set the response to a disaster. .

Humanitarian logistics specializes in organizing the required logistical activities during disaster relief operations or complex emergencies. In humanitarian operations, the motive is to save lives and help people. Thus, logistics is seen as a central function in disaster response that leads and organizes a whole bunch of activities like transportation, warehousing, and pushing inventory to the front line (Gursoy et al., 2010). Logistics can determine the success or failure of an emergency mission. Since logistics relies on the speed and efficacy of the aid and if transportation and procurement are added in the logistics costs, it can be the most expensive part of the response to the emergency (Kopczak and Thomas, 2005). Logistics normally corresponds to 80% of the costs of an emergency operation, which means that improving the supply chain is essential to reduce costs and convert donations into more aid (Wassenhove, 2006).

1.2 Background of the Organization

CARE is one of the leading independent, non-political, and non-religious international humanitarian organization working in collaboration with governments, institutions and communities to fight poverty and provide assistance in humanitarian emergencies. It operates in more than 90 countries in Africa, Asia, Latin America & Caribbean, the Middle East and Eastern Europe, reaching over 50 million people through over 950 poverty fighting development and humanitarian aid programs. The food and nutrition security work spans from responding to emergencies to enabling small scale farmers to sustainably increase productivity, build resilience to climate change, and ensure the nutrition of their families. Over the eight years since that transition, the organization has implemented a series of programs with successful outcomes, while simultaneously impacting the policies and practices of government, and bringing transformative change to rural communities.

These broader and deeper impacts go beyond the direct impacts of its programs and are a result of the organization overall country strategy, which enables it to design for scale. The organization's mission is to work with poor women and men, boys and girls, communities and institutions, to have a significant impact on the underlying causes of poverty. The goal of the organization in mutually supportive alliance is to contribute to economic and social transformation, unleashing the power of the most vulnerable women and girls, honouring their dignity. The organization started working in Ethiopia in November 1984 in response to severe drought and famine that devastated the population and claimed the lives of nearly one million people. In 2008, the head office moved from a project-based approach to a more focused and strategic program-based approach.

The organization carries out programs in urban and rural parts of the country through its six field offices in Ethiopia. They are: Borana field office (Oromia national regional state), Afar project office (Afar national regional state), West & East Hararghe field office (Oromia national regional state), North program office (Amhara national regional state), and SNNPR project office (Southern nations, nationalities & peoples national regional state). The organization through its emergency programs responds to dozens of disasters each year, reaching approximately 12 million people. Decades of experience, expansive global reach and robust network of partners enables the organization to take a comprehensive approach to emergency relief. It works with communities to prepare for and mitigate the impact of disasters; develop partnerships with local groups to provide immediate assistance when an emergency hits and works with survivors, especially women and children, to help them recover after the crisis has passed. Its goal is to create a flexible humanitarian surge fund to respond rapidly and effectively to up to four simultaneous large-scale emergencies, while addressing protracted emergencies.

1.3 Statement of the Problem

Delivering aid in an emergency situation is a complex process given the high levels of uncertainty, capacity and resources that characterize the needs. Humanitarian agencies work hard to fulfill their specific mandates and ensure that the beneficiary's needs are met in the quickest and most efficient way. Doing so requires joint efforts between different agencies to achieve the common goal (Gyongyi and Karen, 2012). Humanitarian assistance is beneficial to disaster victims and can play an important role in the development of the country if it is properly coordinated and responds to real needs (PAHO, 1999).

Disasters are creating havoc on humans and nations' economies at a frightening and rising rate. In order to achieve fast response towards any tragedy, the main challenges of humanitarian logistics must be addressed and recognized. The major challenges are high demand uncertainty, uncertainty in time, location and timing. High demand uncertainty occurs due to change in atmospheric conditions or due to manmade reasons. They are mainly affected by dynamic and hard-to-measure issues such as tragedy characteristics. It is also very difficult to predict exactly the time of any disaster to happen. Therefore, one needs to be ready and flexible to handle the same. Similarly, it is very difficult to predict the exact location where the disaster can happen. Due to adverse conditions at the place of disaster, transportation facilities may get affected. Also the distance from affected place and help center matters. The relief material collection and supply is also main issue (Agarwal & Singh, 2018).

Providing humanitarian assistance to the peoples in need can be challenging due to several factors such as the unpredictability of demand in terms of quantity and supply and long delivery time created due to the perishability of good. The vulnerability of infrastructure combined with the uncertainty of acquisition of necessary supplies, generates a disturbed pipeline where the flow is not permanent. The required lead times are short but longer lead times are induced due to the problems of collecting useful information and coordination between the different members of the network (Gursoy et al., 2010).

The environment where humanitarian organizations work is complex and explains the challenges they face. Most of the challenges humanitarian logistics face are related to infrastructure, uncertainties, urgency, adverse environment, bureaucracy, low incentive when using the lessons learned, lack of transportation management, lack of information flow, lack of continuous improvement and donations for short term. In order to improve the logistics practices of humanitarian organizations the best practices from the private sector logistics should be applied. Since humanitarian aid deals with huge operations in which quick responses are necessary; many highly motivated people are involved, and, most importantly, many lives are saved. It is worth the effort to improve its logistics (Agostinho, 2013). This implies that organizations involved in humanitarian operations need to improve their logistics practices so as to save a maximum of human lives and alleviate suffering which entails assessing the practices and identifying the challenges that impede the practices.

Accordingly, the pilot study identified both internal and external humanitarian logistics challenges faced by the organization during the past five years which includes: occurrence of unanticipated logistics bottleneck, lack of knowledge sharing through group brainstorming sessions & regular logistics workshop, restricted use of information technology for decision making, inadequate use of automated system. Among the major external challenges societal and cultural factors which hinders distribution of supplies, lack of support to the distribution team from the local communities, lack of telecommunication infrastructure, inadequate technological facilities to expedite information flow and the difficulty of coordinating and managing multiple players due to lack of technology are the major ones.

The challenges faced by humanitarian organizations, the increase in the frequency and the impact of disasters and limited scholarly works related to the subject matter are the major factors that motivated the researcher to undertake the study. In order to identify and overcome the challenges faced by the organization in its humanitarian logistics practices there is a need to carry out research in the organization. Hence, the proposed study aims to assess the humanitarian logistics practices and challenges of Care Ethiopia so as to improve its operations in the country.

1.4 Research Questions

The study seeks to find a meaningful answer to the following research questions

- i. How situation assessment is practically implemented at Care Ethiopia?
- ii. To what extent procurement management is practiced at Care Ethiopia?
- iii. How warehouse management activities are practiced at Care Ethiopia?
- iv. To what extent transportation management is practiced at Care Ethiopia?
- v. How the distributions & supply of relief items are practiced at Care Ethiopia?
- vi. What are the major humanitarian logistics challenges faced by Care Ethiopia?

1.5 Objectives of the Study

1.5.1 General Objective

The general objective of the study is to assess the humanitarian logistics practices and challenges of Care Ethiopia

1.5.2 Specific Objective

The specific objectives of the proposed study are:

1. To assess the implementation of situation assessment practices at Care Ethiopia
2. To examine whether procurement activities are well practiced at Care Ethiopia
3. To identify whether transportation activities are well practiced at Care Ethiopia
4. To analyze the implementation of warehouse management practices at Care Ethiopia
5. To analyze how distributions and supply of relief items are practiced at Care Ethiopia
6. To identify the major external and internal logistics challenges faced by Care Ethiopia

1.6 Significance of the Study

This research will provide an opportunity for the organization to understand the gaps associated with the current humanitarian logistics practices and take corrective action based on the findings of the study. The study assess the logistics practices of the organizations hence, it provides an insight as to how logistics is managed which will enable the organization to work on problematic areas. The study will also raise awareness on the benefits that efficient logistics management would bring to humanitarian emergency response which is geared towards saving lives and alleviating sufferings. Also, the study provides the reader an opportunity to gain knowledge of the five humanitarian logistics practices such as situation assessment, procurement management, warehouse management, transportation management and distribution of relief items. Furthermore, this research can serve as stepping stone for other researchers who want to enroll in the subject matter.

1.7 Scope of the Study

The proposed study is aimed at assessing the humanitarian logistics practices and challenges of Care Ethiopia for the past five years. However, humanitarian logistics involves numerous activities, due to the limited time and other constraints, conceptually the scope of the study is delimited to the five specific logistics practices i.e. Situation assessment, supply/ procurement management, warehouse management, transportation management, and distribution management. The organization has head office in Addis Ababa and carries out programs in four regional states i.e. Amhara, Oromia, Afar and SNNPR. Hence, to make the study manageable the geographical scope of the study is limited to the operations located in Addis Ababa head office.

The methodological scope of the content of this study is limited to the humanitarian logistics practices adopted by the organization. The study is descriptive type of research which employs both primary and secondary data sources. Data were gathered from management and staff of Care Ethiopia with specific focus on those employees engaged in humanitarian operations. Due to time, finance and other constraints, the researcher did not consider the viewpoints of other humanitarian actors such as donors, aid agencies and host government.

1.8 Limitation of the Study

The major challenge is the limited resources available related to the subject matter. Despite the significance of efficient humanitarian logistics practices, sufficient literature is not available regarding the subject matter since most researches are geared towards assessing the performance measurement of humanitarian organizations. The study focuses on assessing the humanitarian logistics practices of Care Ethiopia for the last five years and the result does not indicate the standpoint of all humanitarian organizations. Thus, to improve its generalizability the study could be replicated in other similar organizations. Geographically, this study is limited to the head office of the organization. Although the organization has different regional offices, this study failed to include the practices in field offices due to the inaccessibility of the staffs because of the outbreak of corona virus (COVID – 19).

1.9 Organization of the Study

The study is organized into five chapters. Chapter one presents a brief introduction to the subject matter along with research questions, significance, scope, and limitation of the study and definition of key terms. Chapter two encompasses a review of both theoretical and empirical works of literature written by various authors related to the subject matter along with the conceptual framework of the study. Chapter three presents the research methods and methodology exploited to conduct the research. It also elaborates on the research design & approach, data sources, the population of the study, data collection, and analysis methods. Chapter four presents the findings of the study, discussion and interpretation. Chapter five presents summary of the study along with the conclusion and recommendations drawn based on the findings of the study.

1.10 Definition of Terms

Disaster - is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins (IFRC, 2000).

Emergency Management - Disaster management, interchangeably referred to as emergency management, series of activities in helping the people to recover their conditions from the disaster occurred in that particular region (WHO, 2002).

Humanitarian Assistance - is aid that seeks to save lives and alleviate suffering of a crisis-affected population. Humanitarian assistance must be provided in accordance with the basic humanitarian principles of humanity, impartiality and neutrality (OCHA, 2012).

Humanitarian Operations - are 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 (OCHA, 2012).

Humanitarian Logistics - is defined as the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people (Thomas & Kopczak, 2005).

CHAPTER TWO

LITERATURE REVIEW

This chapter presents a review of both theoretical and empirical works of literature written by various authors related to humanitarian logistics practices along with the conceptual framework of the study. It includes the concepts of humanitarian logistics and the role it plays in case of disaster. Components of humanitarian logistics practices and challenges faced during humanitarian operations are the major topics included in this chapter.

2.1 Theoretical Literature Review

2.1.1 The Concept of Humanitarian Logistics

Logistics is one of the most critical components to successful humanitarian assistance. Delivering the right assistance to the right beneficiaries at the right time requires both skill and an understanding of the supply chain (Kovacs & Spens, 2011).

According to Chandes & Pache (2010), humanitarian logistics in emergency relief is defined as;

‘It is the managing humanitarian emergency relief supplies from source to the beneficiaries efficiently and effectively. The main task of a logistics system is to deliver the appropriate supplies, in good condition, in the quantities required, and at the places and time they are needed’.

Humanitarian logistics is a set of actions taken by organizations in an attempt to move information, goods, and services for the specific goal of aiding target beneficiaries, environments, and societies (Bhimani & Song, 2016). In lieu of profit, humanitarian organizations seek a balance between speed and cost in their supply chain. Driven by the urgency of needs and high levels of uncertainty, during the ramp-up stage all processes focus on speed and cost takes a back seat. Humanitarian agencies prioritize the need to get to the area, witness and document the extent of the damage; assess how many resources are needed, and implement immediate solutions (Tomasini & Wassenhove, 2009).

Essentially for humanitarians, logistics is the processes and systems involved in mobilizing people, resources, skills and knowledge to help vulnerable people affected by disaster (Wassenhove, 2006). Disasters create a massive demand for relief aids that include food, medicines, shelter, water and other resources. Efficient emergency operations are required to increase the supply of relief aids. In humanitarian operations quick response and demand satisfaction take precedence over profit as being important parameters while delivering relief. In other words, the right goods should reach the right place, within the shortest possible time to those who need it the most (Safeera et al., 2014).

2.1.2 The Role of Humanitarian Logistics

Logistics is the key to disaster response operations and humanitarian aid missions. The length and quality of care, significant factors for reducing the negative social and economic impacts in humanitarian operations in an emergency, are significantly influenced by the degree of excellence in logistics operations (Bastos et al., 2013). The role of humanitarian logistics involves ensuring the safety of human lives and infrastructures, controlling the losses of money due to tragedy, ensuring good data management of information system, providing better transportation system, improving the alarm time, networking system and the communication skills (Agarwal & Singh, 2018). Humanitarian logistics is also crucial to the effectiveness and speed of current and future operations and programmes (Wassenhove, 2006).

The purpose of humanitarian logistics is to rapidly provide the appropriate emergency supplies to people affected by natural and manmade disasters so as to minimize human suffering and death (Balcik et al., 2008). Humanitarian logistics encompasses the process of mobilizing people, resources, skills and knowledge to help the disaster's victim. In humanitarian process, logistics is central of all the mobilization activity as it served as bridge between the disaster preparedness and response, procurement and distribution and headquarters and the field. It also can be one of the most expensive parts in the relief operation and the effectiveness of the operation is always being monitored in order to improve the operation and to minimize the operating cost with the maximum of result's operation (Daud et al., 2016).

2.1.3 Players involved in Humanitarian Logistics

The players for humanitarian logistics refer to the people or organization that takes part in contributing to the humanitarian logistics process. All the actors have important responsibilities and task to ensure the humanitarian logistics plan is successful and with the minimum cost (Daud et al., 2016). Humanitarian work is driven by individuals and organizations with the principal goal of improving the conditions of target populations known as beneficiaries. The stakeholders in humanitarian logistics includes the populations receiving aid, organizations involved with its distribution, manufacturers that produce it, militaries, shipping companies, donors who sponsor the activities, governments that play important roles and many more. Thus, logistics is concerned with the movement of information, goods and services between entities (Bhimani & Song, 2016).

The relief system involves large number of actors and stakeholders and operates in highly unpredictable, dynamic and chaotic environments. Thus, disaster response activities of relief organizations vary widely and are driven by numerous factors depending on each situation's characteristics. The uncertainties and variability in the relief environment leads to most logistical decisions being made after disasters (Balcik and Beamon, 2008). After a disaster strikes host governments authorize and activate humanitarian logistics stream. The military can provide resources and primary due to its historical logistics and planning capabilities. Donors represent the sources of funding through donations, either in-cash or in-kind (Balland and Sobhi, 2013).

Donors play such a large role in the humanitarian relief sector that the vast majority of NGO's regard donors as customers. NGO's manage a service chain, providing the service for donors of delivering aid-to-aid recipients. NGO's manage a relief chain, providing people, supplies, and services to aid recipients and the donors as analogous to a commercial board of director (Beamon & Balcik, 2008). In almost all disasters, local communities play the first and often most important role in responding by rescuing those affected, providing first aid and emergency shelter, usually long before outside organizations arrive at the scene. Hence, building a strong volunteer group is an important disaster response asset (SA and Syed, 2013).

2.2 Components of Humanitarian Logistics Management Practices

According to (Jiang & Yuan, 2018), emergency logistics is a very complex dynamic process which consists of many interdependent tasks with complex objectives and constraints. After an occurrence of a disaster, the primary task is collecting and distributing emergency resources to the affected areas, however, several interdependent tasks emerge, such as who holds the emergency resource, where can one get the emergency resource, who delivers the emergency resource to the affected areas, when are transport vehicles available, etc.

The major focus areas of the proposed study are the five logistics practices namely situation assessment, procurement management, transportation management, warehouse management and distribution management practices.

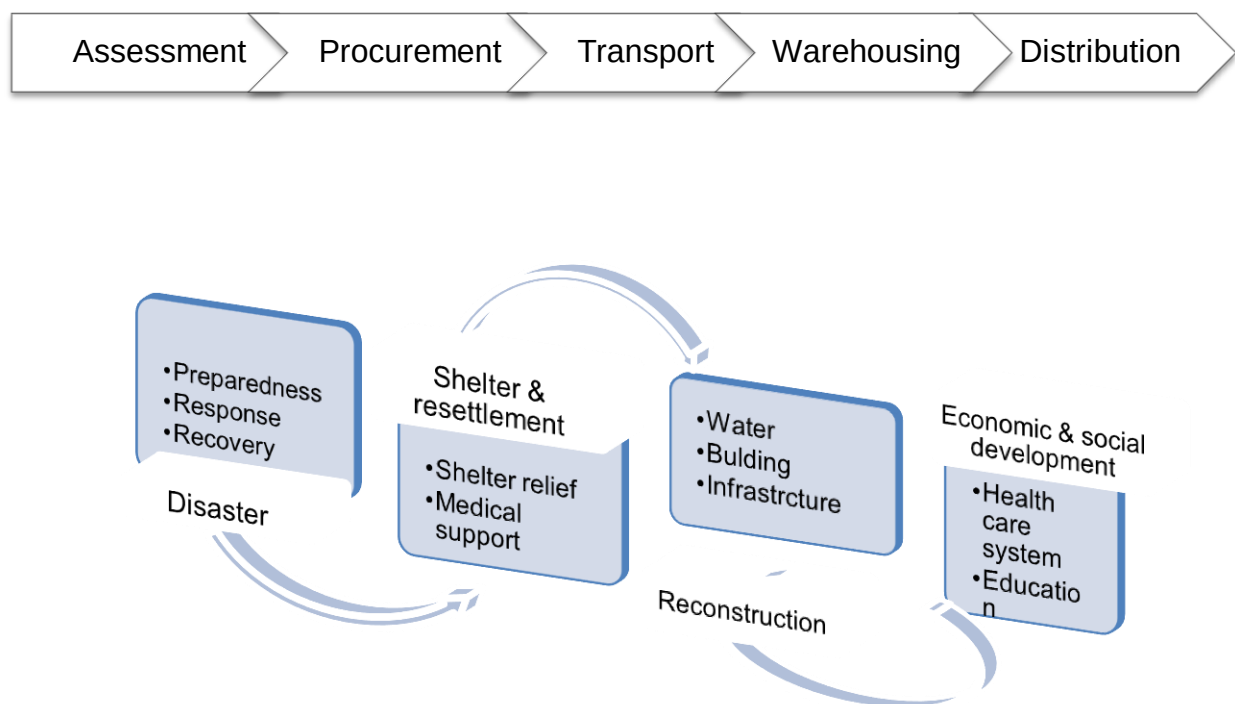


Figure 2.1: Humanitarian Logistics Practices (Source: Klumpp and Abidi, 2011)

2.2.1 Situation Assessment

It is conducted immediately after the onset of a disaster in order to locally assess the disaster-affected areas and the needs of disaster victims. It involves assessing the needs of the affected population and designing a prioritized plan of action based on those needs which improve the quality and speed of response (Arii, 2013). It is composed of several activities: preparedness planning, data collection, interpretation, forecasting, reporting, and monitoring. The report should include the current food, health, water, sanitation, and shelter situation. It should mention the capability or capacity of local resources and if any effort at coordination is underway. It should also describe the state of the roads, seaports, airports, the availability of transportation and the means of getting relief to disaster affected population (Moeiny & Mokhlesi, 2004).

Assessing the logistical and supply needs is crucial to determine as accurately as possible: the needs of the population after disaster; available local capacity and resources; complementary capabilities and resources required for meeting those needs. Such assessments should be fully integrated into the general needs assessment process that is carried out in a disaster area to determine the type and severity of the damage and the most urgent intervention priorities. The quality of this assessment is very important, since requests for supplies will be based on the disaster situation as identified on the ground (PAHO, 1999).

Its purpose is to perform a broad assessment of the disaster and basic needs of the population in order to identify priorities for assistance. It is advised to collect information from as many sources as possible, and to perform direct observation in order to verify the data. The evaluator should focus on assessing the general layout, estimating the number of affected people, local infrastructures and resources, living conditions and level of insecurity and the degree to which normal life and social structure have been disrupted and how well the affected population is coping. Without a rapid assessment, significant gaps or overlaps in assistance may occur, which not only wastes precious resources time of great need, but can also be a cause of further burden to the affected population. When conducting assessment, evaluators must understand its limitations and drawbacks. Because speed is a priority, the accuracy of the data may be compromised, and the information obtained is often prone to bias (Arii, 2013).

Good assessment practice is characterized by the provision of information and analysis on time, the provision of relevant information throughout the course of a crisis, provision of the most relevant information and analysis to decisions, adequate scope to the scale and nature of the problem and the decisions to be taken, recognized assessments by experienced personnel, transparency, reasonable accuracy, consistency and comparability with data obtained by using standards and participation of disaster affected population (OCHA, 2012).

2.2.2 Procurement Management

In times of emergencies, man-made or natural, when communities are vulnerable, prompt response and actions with fast results are needed. The effectiveness of the response to emergencies in meeting the immediate needs of the affected communities, embarking on the path to recovery and reconstruction, and building trust in governing bodies depends directly on the effectiveness of the procurement processes implemented to respond to the urgent needs (Ali et al., 2015). If donors respond and the appeal is funded, relief supplies are mobilized. Then the logistician attempts to procure the supplies from local sources, and if the relief organization owns a centralized warehouse, the logistician checks available supplies in those warehouses. Anything that cannot be fulfilled locally or from centralized warehouses is procured from global suppliers through competitive bidding. There are usually multiple suppliers supplying a single relief organization for each relief effort (Beamon & Balcik, 2008).

The goal of procurement in relief operations is to enable orders to be placed and delivered on schedule at a good price. When possible, governments and organizations prefer to buy locally to avoid delay times and try to help the local economy. However, some organizations prefer to use their regular suppliers to guarantee the quality and standardization of their supplies, or to get better prices (Moeiny & Mokhlesi, 2004). Thus, the purpose of the procurement process is to make sure that the organizations involved in relief management have the resources needed to meet identified needs. This in turn requires identifying the sources of those goods and services and the way in which they will be acquired (PAHO, 1999). The advance purchase and pre-positioning of relief supplies speed up the initial humanitarian response after the strike of a disaster. It is a strategic decision that requires significant amount of investment both in infrastructure and inventory. It eliminates the difficulties and disadvantages of procuring after disaster with faster response time (Duran et al., 2013).

The global pre-positioning networks that are developed to respond to multiple disasters types need to have high turnover rates to enable the storage of consumable relief items such as food and water without increasing risks of spoilage. Since time is not a critical issue during advance purchasing, longer delivery lead times from global suppliers are tolerable and organizations have the time to search for the best prices around the world (Duran et al., 2013).

Moreover, after a disaster occurs, demand for aid supplies will likely change over time; some items are needed immediately at the earliest stages of relief operations, while other items can be safely supplied during later stages. Designing a pre-positioning system that balances the costs against the risks in the relief chain and maximizes the benefits to the affected populations is vital to achieving an effective and efficient disaster response (Beamon & Balcik, 2008). A global humanitarian system would also benefit from a flexible supply base that increases resilience to disruptions. The ability to find alternative suppliers justifies the use of multiple suppliers that are members of the system with shared responsibilities, pre-approved and certified for specific materials, and must participate in humanitarian system tests and activities (Gavidia, 2017).

2.2.3 Transportation Management

Transportation and logistics are the major components of the operations of relief organizations, and improving the efficiency of transportation and logistics systems has potential to significantly expand humanitarian relief services (Dolinskaya et al., 2011). Immediately after the disaster, humanitarian organizations often face significant problems of transporting large amounts of different commodities including food, clothing, medical supplies, machinery, and personnel from several origins to several destinations inside the disaster area. The transportation of supplies and relief personnel must be conducted quickly and efficiently to maximize the survival rate of the affected population and minimize cost of operations (Haghani & M. Afshar, 2009).

In most instances, during disasters transportation infrastructures are damaged, resulting in many constraints imposed on last-mile emergency logistics and affecting feasibilities for emergency relief operations (Jiang & Yuan, 2018). Thus, transportation infrastructure is very critical especially for disaster prone areas. Most transportation infrastructure is designed to operate under normal conditions and little attention has been given to unforeseen circumstances. This implies that if a disaster strikes, there will be more extensive damage to infrastructure. A good transportation system is a key to survival and recovery of a disaster hit area (Masaba, 2015).

Therefore, transport infrastructure must be planned in relation to the geography of vulnerable areas. Policy makers must plan for resilient transportation and distribution systems both for short and long term operations because a poor transport policy is likely to prolong suffering. A combination of the different transport modes should be adopted and used because during disaster, no single mode may be appropriate (Masaba, 2015).

Transportation flexibility and resilience can be achieved through the use of multimodal transportation that goes beyond conventional modes used under non-emergency conditions, and where special modes of transportation resilient to disaster conditions, such as military resources, are critical. In addition to road, airplane, and commercial shipping, alternative transportation such as specialized aircraft, and helicopters should be available when other modes of transportation are not available. Highly flexible transportation modes, such as drones, bicycles and all-terrain vehicles can also be deployed as standard materials that can themselves be used for access to affected areas. Multiple carriers should also be part of the system, including commercial, government and NGO transportation resources (Gavidia, 2017).

The catastrophic nature of the disasters made it challenging for logistics networks to get supplies, equipment, and personnel where and when needed. Road closures, repair of damaged roads, and the reopening of roads are the most seen scenarios after disaster. The best practices for transportation indicate that, with the help of new developments in RFID technology, an optimal solution in transportation is reached. RFID tags can be used not only for trucks, but also using these tags on the packages of commodities like water, food, search and rescue equipment or any other emergency materials (Gursoy et al., 2010).

2.2.4 Warehouse Management

The role of the supply chain is to deliver the right products, in the correct quantity, to the right customer, at the right place, at the right time, in the right condition and at the right price. Delivering the right product in the right quantity relies on accurate warehouse picking and dispatching activities. Delivering to the right customer at the right place, on time, requires the product to be labeled correctly and loaded onto the right vehicle with sufficient time to meet delivery deadline. The warehouse also has to ensure the product leaves the warehouse clean and damage free. Ensuring the right price requires a cost-efficient operation that delivers value for money. Therefore, the warehouse is crucial in delivering the perfect order (Richards, 2014).

Warehouse is important because it directly helps reduce suffering of affected people by reducing the time to reach them while also encouraging cooperation and collaboration between large numbers of governmental, non-governmental, national and international organizations working in the field of disaster management (Maharjana & Hanaoka, 2017). In the relief chain, stock can accumulate in many places. Collection sites can act as transshipment points, warehouses, and as places to prepare and pack goods. They can be located in impacted areas or near ports, border crossings, or airports. Stock asset management is the process of organizing warehouses at certain points and organizing the supplies held in those warehouses for delivery. Warehouses and transshipment points should be located strategically to make use of available infrastructure guaranteeing safety conditions for the assets and people (Moeiny & Mokhlesi, 2004).

Warehouse location should be accessible in the right direction in the right area, the size of the land should be appropriate. Storage area used for disaster should be close to the center, storage should be provided in accordance with climatic conditions, a separate stock card should be opened for each material and stock code should be given to all the material defined in the content. The warehouse management center should be equipped with a loading and unloading system i.e. barcode, FRID, WMS, etc. infrastructure, camera system and lighting warehouse management information board equipped with a loading and unloading system. Defects should also be identified (Adiguzel, 2019). Definition of points to receive goods in order to objectively define distribution by warehouse and storage in classes or supply kits to facilitate the distribution should be undertaken. It involves storage, handling, screening, shipment and discharge of material rejected. In points with incoming international donations, it is essential to have staff with custom clearance knowledge, in order to avoid congestion at the entry point. It should also qualify staff to work in the area, to reduce errors and avoid the congestion of airports and blocked warehouses (Costaa et al., 2012).

2.2.5. Distribution Management

Distribution activities play a central role in disaster response operations. Resource distribution deals with delivering the various relief resources to affected areas efficiently (Jiang & Yuan, 2018). The chief goal of the logistics chain in relief operation is to deliver aid to people affected by the disaster, in a way that is proportional to existing needs, fair and properly controlled to prevent abuses or wastes. For distribution to be carried out effectively, the various organizations receiving supplies must coordinate their efforts, particularly with government agencies. Supplies must be distributed based on the demand for them and on the existing stock (PAHO, 1999).

Distribution activities enable the relief supply chain, through coordinated transportation nodes and modes, to effectively deliver goods and services in an expeditious and efficient manner. Capacity, capability, speed, cost, resiliency, reliability and robustness of transportation all contribute to a supply chain's ability to respond to demand or changes in demand while meeting mission requirements (FEMA, 2018). The number of distribution points should be made to minimize the distance to the beneficiaries, but they should be placed in already established community centers, and meeting places. An efficient distribution program requires information about the goods available and the people affected. The use of military activities in cargo handling and access roads clearance facilitates the humanitarian mission. Mapping the risk areas and identifying the availability of resources by type of transport able to be mobilized within shortest time in the occurrence of natural disasters. Thus, it is essential to undertake a survey of transport service providers, as well as government entities or private organizations with fleets available that can assist in humanitarian operations by identifying their capabilities (Costaa et al., 2012).

The distribution of emergency supplies for a typical disaster relief operation involving international actors is, relief supplies from different locations throughout the world arrive at a primary hub i.e. sea ports, airports. Then supplies are shipped to secondary hubs which are large, permanent warehouses in larger cities, where they are stored, sorted, and transferred to tertiary hubs which are local and temporary distribution centers. Finally, relief supplies are delivered to beneficiaries. Last mile distribution is the final stage of relief chain which involves delivery of relief supplies to the people in the affected areas or demand locations (Beamon & Balcik, 2008).

The last two stages of the relief supply chain are the last mile between an extended delivery point which are locations or warehouses near the affected area and the beneficiaries. The last mile process is critical to ensure that the reliefs item are received by the people who really need them. This phase is often challenging, due to damaged infrastructure and road limitations within the affected area (Duran et. al, 2016). The most significant logistical problems in the last mile generally stem from the limitations related to transportation resources and emergency supplies, difficulties due to damaged transportation infrastructure, and lack of coordination among relief actors. It is challenging for relief agencies to develop effective and efficient distribution plans in such a complex environment while simultaneously achieving a coordinated response. Therefore, NGO's may make distribution decisions using ad-hoc methods, which may lead to inefficient and ineffective response (Beamon & Balcik, 2008).

2.3 Challenges in Humanitarian Logistics

A great deal of literature stresses the complex nature of disaster relief. The greatest unknowns in humanitarian logistics are the time, place, and severity of a disaster in terms of both people and property. However, more specific factors influence the efficiency and effectiveness of the logistics response. Chief among these concerns are the amount, type, and usability of infrastructure and equipment. Media involvement and the way funds are raised for relief operations are inextricable (Overstreet et al., 2010). The success of humanitarian organizations disaster operations is dependent on timely delivery of goods and supplies, which is possible through good relationships with potential suppliers (Shafiq & Sortana, 2019).

According to (Sheu, 2007), emergency logistics is unique in ways that increase the relative complexity and difficulty in solving relief logistics problems, particularly in terms of emergency logistics distribution. Demand related information e.g. the severity of disaster-induced effects on the affected areas and casualties, is quite limited. The emergency logistics resources and the corresponding requirements may not be fully controllable to decision makers in the supply side, adding more challenging issues to the quick-responsive emergency logistics distribution system. The damaged infrastructure affected due to disaster may incur more unexpected risks of relief distribution, leading to induced issue of restructuring the emergency logistics network, which should be resolved in a limited time frame. Also, resource management problems lead to more serious supply-demand imbalance problems in the process of emergency logistics distribution.

Managing emergency humanitarian logistics operations is complex due to the risks and uncertainties that accompany any disaster (Safeer et al., 2014). Humanitarian logistics is one of the most challenging issues in the field of logistics, and such operations are renowned for their complexity. The special challenges are due to some unique and complicated characteristics; the delivery of multiple commodities through potentially multi-modal networks under very strict time constraints requiring the coordination of multiple disparate actors (Wisetjindawat et al., 2014). According to Agostinho (2013), the environment where humanitarian organizations work is complex and challenging. Some of the challenges are: inadequate infrastructure, unstable environment, urgency where the goal is to save lives, adverse environment in which the work is both physically and emotionally demanding, custom clearance which lengthen lead times and reduce the efficiency of the operation, high turnover, lack of information sharing, short term donations, lack of continuous improvement and lack of transportation management.

Time constraints in humanitarian logistics during survival period are more crucial than usual, because faster relief operations mean a greater likelihood of saving lives (Wisetjindawat et al., 2014). The importance of timely response is much different in the humanitarian sector than in the commercial sector. While a delay in the commercial supply chain is costly in terms of productivity and/or customer satisfaction, a delay in the humanitarian supply chain could mean the difference between life and death for those most severely impacted by the disaster. Furthermore, the humanitarian relief supply chain entails working with an ad hoc team of organizations in extremely difficult and unpredictable circumstance (Overstreet et al., 2011).

2.4 ICT and Coordination in Humanitarian Logistics

2.4.1 Information technology

Information technology plays an important role in modern disaster management mechanisms, helping humanitarian organizations to identify and prevent disaster risk in operating activities. IT used for disaster mitigation has the following benefits: elimination of human element, adoption of automated signalling system, effective communication network; IT based recruitment system and whole system approach. For building infrastructure protection, IT can be used for advanced surveillance systems, geospatial location accountability and navigation system for emergency responders, integrated rapid visual tool, alert & warning and area surveillance (Bhattacharjee, 2014).

Information and communication technologies enable humanitarians, affected communities and volunteers to create, collect, share and use more information than ever before. The goal of any humanitarian logistics information system is therefore to help humanitarian logisticians to attain situation awareness, and provide decision support for the logistics decisions they face. It has three main objectives: assessment: providing an overview of humanitarian needs, the situation on the ground and monitoring how they evolve; co-ordination of all humanitarian activities to avoid gaps and overlaps; and humanitarian briefs and appeals towards donors (Comes & Walle, 2016). Humanitarian logistics information systems can improve the flow of information with other units, in a mutually constructive manner, improving the effectiveness of the humanitarian supply chain. Automated manifest system laser cards have been developed by the defense logistics agency to store substantial amounts of information about shipments. In most instances, Radio frequency identification tags are attached to pallets, trucks and large containers to monitor the location of shipments (PAHO, 1999).

Hence, humanitarian logistics information systems need to be designed to collect timely, correct and relevant information about the disaster: needs, gaps and humanitarian priorities; available resources and funding; state of infrastructures and access conditions: capacities; goods and delivery status; and to identify all actors within the supply chain e.g. suppliers, transport and infrastructure providers and end users (Comes & Walle, 2016). There are many applications to manage disasters such as; GIS: which provides a tool for effective and efficient storage and manipulation of remotely sensed data and other spatial and non-spatial data types for both specific management and policy oriented information. Remote sensing: makes observation of any object from a distance without coming into actual contact. It can gather data much faster than ground based observation and can cover large area. Internet also provides a useful platform for disaster mitigation communications. Electronic communication has provided the most effective and in some instances perhaps the only means of communication with the outside world (Vyas & Desai, 2007).

For correct decision-making at any stage of disasters from prediction to reconstruction and rehabilitation a considerable amount of data and information is necessary. The most important procedures relating to information for disasters are monitoring, recording, processing, sharing, and dissemination (SA & Syed, 2013). Timely and accurate information is critical to disaster. Effectively collecting, compiling, analyzing, and disseminating timely and relevant information is one of the primary challenges for humanitarian information management and exchange activities. When disasters strike, people need food, shelter, blankets, and medicine. But without an effective communications network, supplies are left undelivered, and relief workers are unable to do their jobs thus, communication is essential to save lives. ICT is crucial in forecasting and building resilient communities better able to respond to humanitarian emergency, when disaster strikes ICTs help to coordinate complex relief mission (Mubarak et al., 2013).

The management of emergency information supports the decision process before, during and after an emergency. The delivery of an adequate and timely response requires an effective and efficient information management process. It is understood that the information may not, under the circumstances, be absolutely accurate, but it must be based on the best data available at the time. This process should also ensure that procedures are established in order to be registered for the future learned lessons (Bastos et al., 2014). Though it is not possible to completely avoid disasters, but the sufferings can be minimized by creating proper awareness of likely disasters and its impact by developing a suitable warning system, disaster preparedness and management through application of IT tools (Vyas & Desai, 2007).

2.4.2 Coordination

Coordination describes the relationships and interactions among different actors operating within the relief environment. Humanitarian relief environments engage international relief organizations, host governments, the military, local and regional relief organizations, and private sector companies, each of which may have different interests, mandates, capacity and logistics expertise (Shorafa, 2012). A well coordination among the actors involved can improve the efficiency of the operation as well as reduce unnecessary use of the resources and alleviate problems often reported in the humanitarian logistics operation (Wisetjindawat et al., 2014). As disasters become increasingly complex better collaboration not only with governments, the military, other humanitarian organizations, but also through partnerships with private business becomes ever more important (Wassenhove, 2006).

Collaboration and coordination between the actors operating in the same scene of disaster management is more than necessary; it is an obligation. Due to this lack of coordination many bottlenecks would appear during simultaneous operations in the same affected area. Lack of communication, due to the decentralized organizational network structure will affect the quality of the information needed for the different response activities (Gursoy et al., 2010). Effective coordination among various responders is critical to successful preparation and response to disasters. The benefits include: improved efficiency, cost-effectiveness and speed of response, strategic decision making on issues of common concern, elimination of gaps and duplication of services in meeting the needs of the affected populations, appropriate division of responsibilities based on the organization's comparative advantage, sharing and exchange of information, objectives and mutual interests (Disaster Emergency Needs Assessment, 2000).

The importance of coordination between agencies is mainly to avoid unnecessary spending with duplicate processes, and also to avoid the competition for transport, storage and staff among humanitarian organizations as well as to facilitate information sharing in order to synchronize their operations and response capabilities (Shorafa, 2012). Good information sharing has been stressed as a key to effective coordination. This should be taken very seriously, especially in the initial phase of the response when information is very scarce and hard to get. It is a key that what little information we have is gathering efficiently and shared with everyone involved in the response (Olafsson, 2014).

Procurement coordination is challenging in relief sector due to uncertainties of disasters, characteristics of donor funding, specific procurement procedures of relief organizations, and limited information technology availability to support implementation. The warehouse coordination cost of initiating and maintaining the standardization of relief supply packaging and labelling would be enormous. The vast number of suppliers and the presence of in-kind donations would require substantial effort to reach the level of supplier compliance. Similarly to procurement, the coordination mechanisms in transportation face a number of unique challenges. In both cases, these challenges stem from the difficulties introduced by lumpy, uncertain demand and highly variable global shipping destinations. Collaborative procurement and third-party warehousing are distinguished by having low associated costs, low technological requirements, and being conducive to the relief environment. Generally, despite seemingly conflicting mandates, it is vital that those involved in the humanitarian operation find a way to collaborate in order to provide relief in a complimentary and efficient way (Balcik et al., 2010).

The major challenges related to humanitarian logistics coordination are; large number and diversity of participants, urgency of humanitarian relief response and limited time to establish coordination and limited information sharing and communication. The strategies that facilitate logistical coordination in humanitarian relief are the use of web based systems for easy access and low personnel requirements, membership subscription to reduce risk, mechanisms to mitigate risk and allocate costs and benefits, application of easy to use information sharing and communication tools and feedback mechanisms to facilitate learning from prior experiences (Dolinskaya et al., 2011).

2.5 Empirical Literature Review

2.5.1 Practices and Challenges in Humanitarian Organizations

Adem (2017) researched the practices and challenges of humanitarian logistics in selected international NGO's in Ethiopia. The result indicates that the strictness of governmental procedures and infrastructural challenges affect logistics effectiveness. The findings also indicates that the needs of the vulnerable groups are clearly known at the time of pre-response or logistics need assessments, thus, it is necessary to conduct situation assessments. Scarcity of warehouse space and lack of relevant information management systems will affect the process of distributing relief aid at the right time, at the right place and to the right people.

Begna (2018) researched the challenges and practices of disaster preparedness and its effect on humanitarian logistics performance of National Disaster and Risk Management Commission of Ethiopia. The results revealed several logistics challenges which include inappropriate selection and recruitment of appropriate and professional aid worker which affects the response operations, lack of training centers, and high level of employees' turnover due to the hardship nature of the job, very low salary, and uncomfortable environment especially for newly recruited staffs. Furthermore, inadequate level of integration and communication with government offices and authorities, lack of single channel prepared by the customs authority to facilitate the customs clearance of relief items and other supporting material, low effort to raise funds for relief operations as well as mitigation activities, inability to full fill the needs and preconditions set by the donors and ineffective resource mobilization render to preparation activities, high dependency on foreign aid and budget constraint, low utilization and access for information technology specially to forecast and early identification of hazards.

Japhet Baidoo (2018) conducted a study on "Ensuring the effective and efficient humanitarian logistical service delivery the role of disaster relief organizations in Ghana". The results indicate that transportation problems, poor communication and delays in custom clearing and logistics procedures, tend to affect the efficacy of humanitarian organizations. Jafero (2016) researched the challenges of humanitarian supply chain management in the case of National Disaster Risk Management Commission. The results revealed that the humanitarian agencies hardly rely on improved technology in managing the supply chain operation. Very limited numbers of software were also in place to use during the disaster response initiatives.

Tafese (2018) assessed the factors affecting the implementation of supply chain management practices in international NGO's in Ethiopia in the case of World Vision Ethiopia. The study noted that employee' skills and abilities affect the implementation of supply chain management practices. The study results also showed that inventory forecasting determines implementation of the supply chain practices to great extent. Results from analysis also showed that management support has great effect in determining implementation of supply chain management practices. Research further established that information sharing greatly affects the implementation of supply chain management practices. In relation to information sharing aspects clear mutual expectations has a great effect on supply chain management implementation.

Taye (2019) assessed the humanitarian logistics coordination practice, role and performance of Ethiopian Red Cross Society using regression and correlation analysis to identify the relation of humanitarian logistics performance with organizational relationship, resource sharing and information sharing practices. The finding of the study indicates positive relationship between the performance of humanitarian logistics and organization relationship, resources sharing and information sharing practices. This implies that a unit increase in one of the variables results in corresponding increase in humanitarian logistics performance. The major coordination challenges identified by the researcher include urgency of relief response, limited logistics practices and government assistance and structure.

Wako (2018) researched the humanitarian logistics practices in disaster response operation in the case of Goal Ethiopia. The procurement practice indicates challenges due to; inexperienced procurement staffs, absence of potential supplier in operation area, inadequacy of organization policy and inability to specification preparation on time and effective plan management problem during emergency time to practice procurement. The result of warehouse and distribution practice indicates challenges which were due to lack of use of technology, problems in receiving and inappropriate distribution system as well as inadequacy of warehouse and delay during commodity distribution. The result of transportation practice indicates challenges due to; inefficiency of annual transportation management plan, absence of adequate infrastructure and difficulty of managing rented vehicles. The correlation result indicated a strong and positive relationship between the humanitarian logistics practices and disaster response.

Wodaje (2019) researched the practices, challenges and performances of humanitarian logistics in Plan International Ethiopia. The results revealed that conducting good situational analysis of security, urgency and extent of damage in affected areas before deployment of supplies is mandatory practice in humanitarian logistics. The use of different modes of transportation in order to mobilize supplies and people to where they are required during emergencies are appropriate for disaster response operations. Moreover, the use of prequalified list of transport companies and various transport optimization models to deliver supplies is essential. The study also found out that availing and making accessible sufficient and appropriate warehouse to temporarily store supplies is essential for easier and efficient aid delivery. Furthermore, the finding of the study also revealed that the use of well established distribution centers eases distribution and minimize cost of operation.

2.5.2 Researches on Humanitarian Logistics and Disaster Relief

Bhimani & Song (2016) researched the gaps between research and practice in humanitarian logistics and the results showed that successfully improving the efficiency of humanitarian logistics is crucial because it directly impacts human lives. Ultimately, addressing the needs of humanitarian logistics can create substantial positive impact on beneficiary populations and the body of research. Jamison et.al (2012) carried out a research on humanitarian and disaster relief supply and the finding indicated that effectively and efficiently designing, implementing and managing humanitarian disaster relief supply chains not only reduces costs and lead-time but it can also save lives and reduce suffering thus, a difference can be made.

2.6 Identified Literature Gaps

Numerous researches have been conducted on logistics practices in the banking sector, manufacturing firms and project contexts. In business logistics, the effect of logistics management practices on the company's operational and organizational performance is well studied subject matter especially in the manufacturing sectors. However, humanitarian logistics, despite its importance, for saving lives and alleviating sufferings, remains understudied subject matter. In Ethiopian context, researches on humanitarian logistics practices and challenges are very limited. Rather, most researches focus on assessing the humanitarian supply chain performance of numerous humanitarian aid organizations. Prior to measuring performance, adopting the best practices is very essential. Hence, emphasis should be given to measures that improve the practices in humanitarian organizations. In order to have a comprehensive understanding of logistics practices and challenges in humanitarian organization, this research will focus on assessing the practices and identifying the challenges. Therefore, this research aids to fill the gap regarding the subject matter.

2.7 Conceptual Framework of the Study

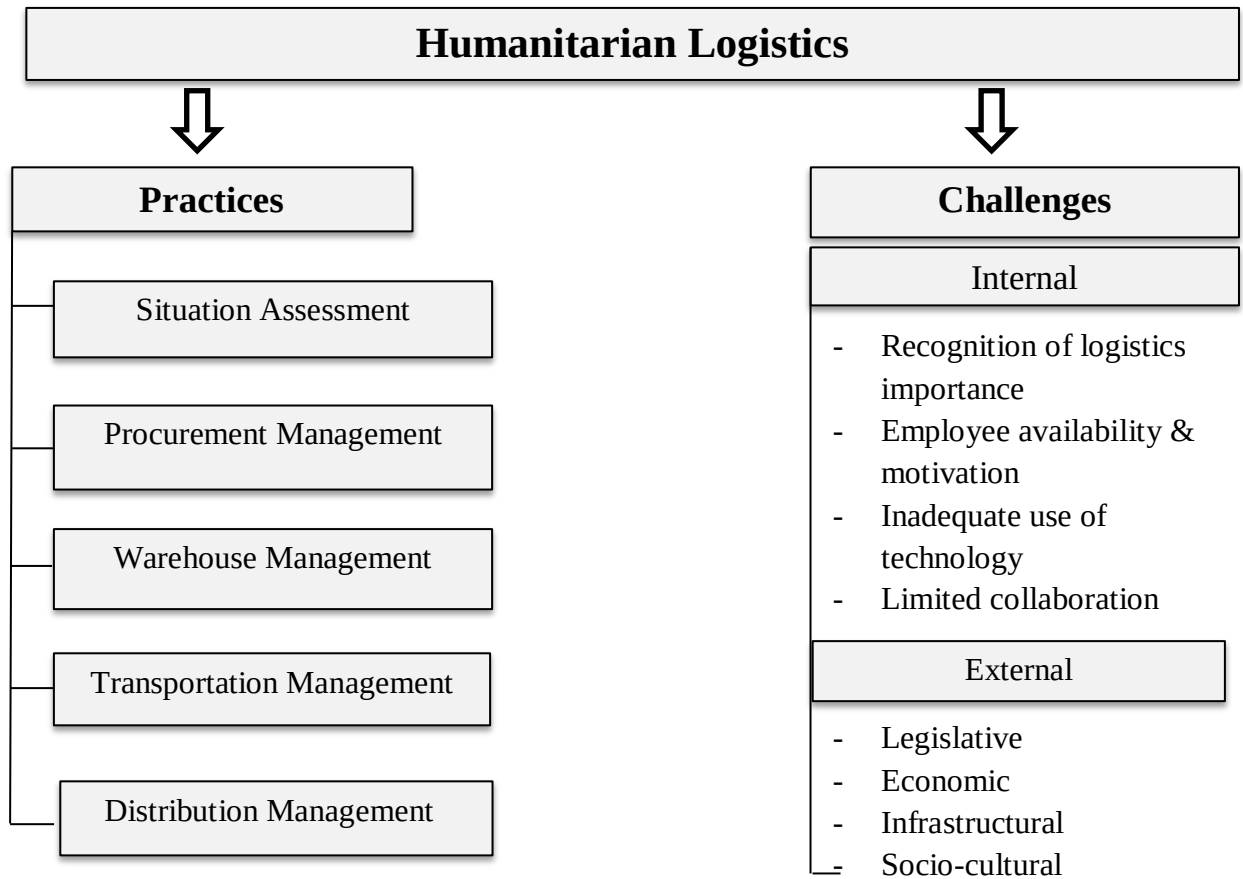


Figure 2.2: Conceptual framework of the study: adopted from Klumpp & Abidi (2011) modified by the researcher

CHAPTER THREE

RESEARCH METHODOLOGY

The purpose of this chapter is to present the methodological techniques used in the research. It encompasses the description of the study area, the research approach and design utilized for the study along with the population of the study and sampling. Moreover, the data sources and types with the data collection and analysis techniques are presented in this chapter. Besides, ethical consideration, validity and reliability are the components of this chapter.

3.1 Description of the Study Area

The study focused on assessing the humanitarian logistics practices and challenges of CARE Ethiopia which is one of the leading independent, non-political, and non-religious international humanitarian organization in Ethiopia. The organization carries out programs in urban and rural parts of the country through its six field offices in Ethiopia. They are: Borana, West haraghe & East haraghe field office (Oromia national regional state), Afar project office (Afar national regional state), North program office (Amhara national regional state) & SNNPR project office (Southern nations, nationalities & peoples national regional state). The head office of the organization which is located in Addis Ababa is the major focus area of the study.

3.2 Research Approach & Design

3.2.1 Research Approach

The study aimed to assess the humanitarian logistics practices and challenges of Care Ethiopia. To address the objective of the study, the researcher used mixed approach to a research. According to Kothari (2004), quantitative approach involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion. While qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behaviour. It generates results either in non-quantitative form or in the form which are not subjected to rigorous quantitative analysis. A mixed method approach allows comprehensive understanding of the phenomenon under investigation because of the integration of quantitative and qualitative data. It is generally appropriate when the purpose of the research is to describe, explain, or evaluate a certain phenomenon (Leavy, 2017). The researcher adopted mixed method approach to the research in an attempt to exploit the advantage of both methods.

3.2.2 Research Design

Research design is the blueprint for fulfilling research objectives and answering research questions. Specifically, it is a master plan specifying the methods and procedures for collecting and analyzing the needed information (Adams et al., 2007). Descriptive research is concerned with the present and attempts to determine the status of the phenomenon under investigation. It is oriented towards the description of the present status of a given phenomenon. The main objective is to identify present conditions and point to present needs, to study immediate status of a phenomenon, finding of facts and examining the relationships of traits (Singh, 2006). The purpose of descriptive research is to describe the characteristics or behaviors of a given population in a systematic and accurate fashion. It may be conducted to obtain basic information about the group of interest or to provide to government agencies and other policy-making groups specific data concerning social problems (Leary, 2012). To address the objective of the research, descriptive research design was utilized in order to obtain information on the current state of the humanitarian logistics practices and to identify the major challenges. In line with this, the research will provide an insight on the observed gaps which enables policy makers to propose appropriate solutions.

3.3 Population and Sampling

A complete enumeration of all items in the population is known as a census inquiry. It can be presumed that in such an inquiry, when all items are covered, no element of chance is left and highest accuracy is obtained. It needs to be emphasized that when the universe is a small one, it is no use resorting to a sample survey (Kothari, 2004). The proposed study targets all the logistics staffs/ employees of the organization so as to investigate the current logistics practices and the associated challenges. As the total number of population is small in number the populations used in the study were all the logistics staffs based at head office. Hence, due to the limited number of population, census survey was applied.

3.4 Data Collection Methods

According to (Kumar, 2011), there are two major approaches to gathering information about a situation, person, problem or phenomenon namely; primary and secondary data sources. The data for the purpose of the study were obtained from both primary and secondary data sources.

3.4.1 Primary Data Sources

The major source for collecting primary data includes questionnaires and interviews. The reason for using two methods of data collection is to overcome the shortcomings of each methods of data collection. These methods are:

i. Questionnaire: it is a research tool for collecting data. It is considered to be the most flexible tools and possesses a unique advantage over others in collecting both qualitative and quantitative information (Singh, 2006). The major advantage of using questionnaires is that it offers high degree of anonymity (Kumar, 2011). For the purpose of the study, it is utilized to assess the organization's logistics practices and its associated challenges. It consists of three sections; the first section includes the demographic status of the respondents, the second section includes closed ended questions for assessing the logistics practices of the organization and the last section includes questions related to internal and external logistical challenges. The closed ended questions consists five point Likert scale. The summated rating scale, more commonly known as the Likert scale, is based upon the assumption that each statement/item on the scale has equal attitudinal value, 'importance' or 'weight' in terms of reflecting an attitude towards the issue in question (Kumar, 2011).

ii. Interview: in order to achieve the objectives of the study unstructured interview was conducted with management staffs. The interview was directly focused on evaluating the logistics practices and challenges of the organization. According to Kumar (2011), unstructured interview is a flexible interview structure with flexible contents and with a greater flexibility in interview questions. It provides complete freedom in terms of content and structure. It helps to formulate questions and raise issues on the spur of the moment, depending upon what occurs in the context of the discussion.

3.4.2 Secondary Data Sources

The secondary data sources were obtained from related studies, the organization's database, reports related to humanitarian aid and journal articles related to the subject matter in order to obtain a comprehensive view of the subject matter.

3.5 Data Collection Procedure

Basically the data collection procedures applied by the researchers includes; formulating proper questions for the study, checking for the appropriateness of the questions, distributing the questionnaires to the logistics staffs, asking interview questions and collecting the questionnaires from the respondents. Questionnaire can be administered in different ways; mailed questionnaire, collective administration and administration in public place. Collective administration ensures high response rates as few people refuse to participate in the study (Kumar, 2011). For the purpose of this study, collective administration was used in an attempt to achieve high response rates and to be able to clarify questions that can be raised from the respondents. However, due to the busy schedule of respondents, some questionnaires were collected through drop and pick later method.

3.6 Data Analysis

Descriptive statistical analysis is concerned with numerical description of a particular group observed and any similarity to those outside the group cannot be taken for granted. It provides valuable information about the nature of a particular group (Singh, 2006). The study applied mixed approach to the research. Hence, data were analyzed both quantitatively and qualitatively. Data collected using questionnaires were analyzed by using SPSS software version 23. Frequencies and percentages were mainly used to analyze the demographic profile of the respondents. To assess the humanitarian logistics practice of the organization using the five logistics practices mean and standard deviations were used. The mean value of responses from 1 up to 1.80 implies a logistics activity that was never practiced; the mean value of 1.81 up to 2.60 indicates a poorly practiced logistics activity, the score of moderately practiced logistics activity ranges from 2.61 up to 3.40, the mean score of 3.41 up to 4.20 indicates a well-practiced logistics activity and the score of extensively practiced logistics activity.

The data collected through unstructured interviews were analyzed qualitatively. The unstructured interview with the managers identified the major challenges associated with the five logistics practices. Moreover, to determine the internal consistency of the test instruments Cronbach's alpha was analyzed.

3.7 Scale Reliability & Validity

3.7.1 Reliability

Reliability refers to the consistency or dependability of a measuring technique. As a rule of thumb, researchers consider a measure to have adequate interitem reliability if Cronbach's alpha coefficient exceeds .70. This is because a coefficient of .70 indicates that 70% of the total variance in participants' scores on the measure is systematic, true-score variance. In other words, when Cronbach's alpha coefficient exceeds .70, the items on the measure are systematically assessing the same construct and that less than 30% of the variance in people's scores on the scale is measurement error (Leary, 2012). Hence, the reliability of the questionnaire is analyzed using the Cronbach's alpha results presented below.

As shown in the table below, all Cronbach's alpha coefficients are greater than 0.7 which indicates that the variables are consistent.

Table 3.1: Reliability Statistics

Variables	Cronbach's Alpha	No of items
Situation assessment	.76	5
Procurement management	.83	5
Transportation management	.72	5
Warehouse management	.87	5
Distribution management	.79	5

Source: Survey Result (2020)

3.7.2 Validity

Validity refers to the extent to which a measurement procedure actually measures what it is intended to measure rather than measuring something else. It is the degree to which variability in participants' scores on a particular measure reflects variability in the characteristic we want to measure (Leary, 2012). In order to confirm the content validity of the measurement instruments, questionnaires were derived from the review of related literatures and previously conducted researches of Wodaje (2019), Adem (2017) and Agostinho (2013). Furthermore, the validity of the measures was verified by the research advisor and subject matter specialists.

3.8 Ethical Consideration

Ethics include the concerns, dilemmas and conflicts that arise over the proper way to conduct research. It helps to define what is or is not legitimate to do, or what "moral" research procedure involves. This is not as simple as it may appear because there are few ethical absolutes and only agreed-upon broad principles. These principles require judgment to apply and some may conflict with others in practice. Many ethical issues sky out to balance two values: the pursuit of knowledge and the rights of research participants or of others in society (W. Lawrence, 2007). Accordingly, the researcher maintained the participation entirely voluntarily and ensured the willingness of the respondent both for the interview and filling the questionnaires. Also, the researcher explained the purpose of the study to the participants. The researcher preserved the anonymity of research participants by keeping the entire data gathering confidential and using the responses exclusively for academic purpose. Moreover, all the necessary precautions were taken to protect the participants of the study from any problems. The researcher attempted to utilize high methodological standards by employing standardized means for collecting data with the intention of avoiding any misconception or misunderstandings. Besides, various books, journals, research papers and conference proceedings utilized as references for the study were acknowledged and properly cited.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

This chapter presents analysis and interpretation of the data collected by means of questionnaires and interviews. Data collected from the employees of the organization were checked for their completeness and were coded and entered in to Statistical Package for Social Sciences (SPSS) for analysis. Descriptive statistics such as means and standard deviations were used to analyze the quantitative data. Accordingly, demographic profile of the respondents, analysis, interpretation and discussion of findings are presented below.

4.1 Response Rate

A total of 46 questionnaires were distributed to the employees of the organization directly involved in humanitarian operations. Out of the total questionnaires deployed to collect data, 37 questionnaires were returned with full information. The questionnaire, which is coded and analysed, had represented 80.4% response rate which is totally acceptable.

Table 4.1: Overall response rate

Population	Number	Percent
Number of questionnaire distributed	46	100
Returned questionnaires	42	91.3
Incomplete questionnaires	5	11
Total usable questionnaires	37	80.4

Source: Survey Result (2020)

4.2 Demographic Profile of the Respondents

Table 4.2: Demographic profile of the respondents

Characteristics	Category	Frequency	Percentage
Gender	Male	24	64.9
	Female	13	35.1
Age	Below 30	7	18.9
	31 – 40	18	48.6
	41 – 50	10	27.0
	Above 50	2	5.4
Educational Level	College Diploma	3	13.5
	Bachelor Degree	29	73.0
	Master's Degree	5	13.5
	Other	0	0
Job Position	Senior Management Staff	6	16.2
	Project Officer/ Coordinator	5	13.5
	Logistics Management Staff	16	43.2
	Procurement Staff	10	27
Work Experience	Less than 2 years	2	5.4
	2 - 5 years	6	16.2
	6 - 10 years	14	37.8
	Above 10 years	15	40.5

Source: Survey Result (2020)

The results of the demographic profile of the respondents implied that the majority of the respondents were well educated and experienced on the subject matter and had the ability to understand the questions they were presented with and were able to provide a clear picture regarding humanitarian logistics practices and the challenges they faced during relief operations.

4.3 Responses on Humanitarian Logistics Practices

This section discusses the result of the extent to which Care Ethiopia is implementing the five basic humanitarian logistics practices. The logistics practices of the organization is presented and discussed for each parameter with respective tables through mean and standard deviation.

4.3.1 Responses on Situation Assessment Practices

The descriptive analysis of situation assessment practices are presented in the table below. The mean value for responses that the organization assesses the safety and security of deploying disaster relief teams in the affected areas is 3.95 indicating that the organization recognizes the need for assessments to set up response priorities. The mean value for responses that the organization assesses the demography and number of displaced population and the size of vulnerable population is 3.62 implying that the organization recognizes the need for assessing the type of needs in disaster situations. Assessment of living conditions, sanitation, food supply, water supply, and health services in the affected areas has mean value of 3.70 implying that the organization has given situation assessment greater recognition to plan effective responses.

Table 4.4: Descriptive Analysis of Situation Assessment Practices

Statements	Mean	Std.Deviation
Assessing the safety and security of deploying disaster relief teams in the affected area	3.95	.88
Assessing the demography and number of displaced population and the size of vulnerable population	3.62	.72
Assessment of living conditions, sanitation, food supply, water supply, and health services in the affected areas	3.70	.61
Assessing the degree to which normal life and social structure have been disrupted	3.73	.56
Assessing the coping mechanisms of the affected population	3.59	.79
Grand Mean	3.71	

Source: Survey Result (2020)

The mean value for responses that the organization assesses the degree to which normal life and social structure have been disrupted is 3.73 which imply that the organization stresses the need for assessments in disaster situations. The mean value for responses assessing the coping mechanisms of the affected population is 3.59 indicating that the organization works towards supporting the disaster victims. Generally, situation assessment practice with grand mean value of 3.71 indicates that situation assessment is well practiced in the organization. Moreover, the standard deviation lies in between 0.5 & 0.8 which indicates lower variations in responses.

The situation assessment practice adopted by the organization indicates that the practice has been given greater recognition to plan effective response efforts. Literature shows that organizations that provide relief without first assessing the disaster impact, the resulting needs, and the local response capacities will most likely offer assistance that is unnecessary and inappropriate and which supplants local efforts (Disaster Emergency Needs Assessment, 2000). Another literature indicates the significance of need assessment as fulfilling the roles of demand planning in the relief chain. It establishes the needs of the population, the local infrastructure capacity and the local resources which are available to respond (Moeiny and Mokhlesi, 2011).

4.3.2 Responses on Procurement Management Practices

The descriptive analysis of procurement management practices is presented in the table below. Avoiding delays in availing the required supplies in disaster situation has mean value of 3.33 which indicates that these practices are moderately implemented. The mean value for the response placing and delivering orders on schedule for purchasing relief items at good prices is 3.41. The mean value for the responses proper management of in kind donations and procurement of required supplies is moderate which is 3.44 implying that the organization is well practicing the proper mobilization of relief items. The organization implements a quick acquisition of supplies to minimize the severity of disaster situations scored moderate mean value of 3.30 implying that more emphasis should be given to minimize the response time to supply relief items in disaster situations. The mean values for the responses the organization maintains a proper match between the requested supplies of relief items and the volume of supplies is high which is 3.42 indicating that the organization attempts to maintain a match between the demand and supply.

Table 4.5: Descriptive Analysis of Procurement Management Practices

Statements	Mean	Std.Deviation
Avoiding delays in availing the required supplies in disaster situation	3.33	.50
Placing and delivering orders on schedule at a good price for purchasing relief items	3.41	.53
Proper management of in kind donation of goods and procurement of required supplies	3.44	.65
Implementing quick acquisition of supplies to minimize the severity of disaster situations	3.30	.57
Maintaining a proper match between the requested supplies of relief items and the volume of supplies	3.42	.55
Grand Mean	3.38	

Source: Survey Result (2020)

Interview with the senior manager of the organization verified that the organization attempts to delivers the supplies required at the right time and quantity. However, transportation problems coupled with infrastructural conditions makes it challenging to deliver relief items on time. More emphasis is given to strengthening the transportation practices so as to avail the relief supplies on time to minimize response rate.

Hence, it can be said that the organization is moderately practicing procurement process. Generally, most of the respondents replied that procurement management is moderately practiced by the organization. This is indicated by an overall mean of 3.38. The standard deviation also lies in between 0.5 & 0.8 which implies slight variation in agreement from the common mean. Literature suggest the ability to find alternative suppliers or the use of multiple suppliers that are members of the system with shared responsibilities, pre-approved and certified for specific materials (Gavidia, 2017). Another literature suggest pre-positioning of relief items to be used in the forthcoming disaster responses which eliminates the difficulties and disadvantages of procuring after the disaster with a faster response time (Duran et al., 2013).

4.3.3 Responses on Transportation Management Practices

The descriptive analysis of transportation management practices are presented in the table below. The mean value for the responses delivering the right products to the right person at the right time is high which is 3.49 implying that the organization attempts to deliver supplies within the shortest time possible. Efficient transportation of relief personnel to maximize the survival rate of the affected population has a mean value of 3.59 which indicates that the organization strives to transport relief supplies rapidly during emergencies. The mean value for the response quick transportation of relief items is 3.59 which indicate that the organization well implements these practices.

The organization uses various transport optimization models to deliver supplies with least possible cost has moderate mean value of 3.11 which needs improvement so as to attain efficient and cost effective transportation practices which will maximizes the survival rate of the affected population in relief operations. Literature suggests implementing optimization techniques to the transportation of goods in order to schedule when and how much to send from each origin to its respective destination over a certain time period is a possible way to make improvements over the total cost of logistics (Khan, 2014).

Table 4.6: Descriptive Analysis of Transportation Management Practices

Statements	Mean	Std.Deviation
Delivering the right products to the right person at the right time	3.49	.50
Efficient transportation of relief personnel to maximize the survival rate of the affected population	3.59	.49
Quick transportation of relief items to minimize the cost of operation	3.59	.55
Using various transport optimization models to deliver supplies with least possible cost	3.11	.78
Using multimodal transportation in emergency conditions to achieve flexibility and resilience	2.81	.63
Grand Mean	3.31	

Source: Survey Result (2020)

The responses using multimodal transportation in emergency conditions has the lowest mean value of 2.81 which is moderately practiced activity. More emphasises should be given to the use of multimodal transportation since most of the transportation infrastructures are damaged during disasters. According to Gavidia (2017), transportation flexibility and resilience can be achieved through the use of multimodal transportation that goes beyond conventional modes. Zhang et al., (2011) stated that, intermodal transportation plays an important role in transporting people and cargo during disaster relief operations.

An interview with the senior manager of the organization revealed that unanticipated logistics challenges, infrastructural conditions and accessibility and security situation in the affected areas pose serious challenges to an effective transportation system. In many disaster affected areas access is restricted which results in longer response time.

In general, transportation management practices with the exception of the use of multimodal transportation mechanisms to achieve flexibility and resilience and transport optimization models to deliver supplies with least possible costs are implemented in the organization. This is indicated by an overall mean of 3.31. The standard deviation for the responses also lies in between 0.5 & 0.8 which implies slight variation in agreement from the common mean.

4.3.4 Responses on Warehouse Management Practices

The descriptive analysis of warehouse management practices are presented in the table below. Availing appropriate warehouses to temporarily store supplies during disaster situations has high mean value of 3.43 implying that these practices is well implemented by the organization. The organization ensures the accessibility of the warehouse to deliver the perfect order in disaster situations has moderate mean value which is 3.41 indicating that the organizations strives to avail the right products, at the right place, at the right time and in the right quantity. Delivering the right product in the right quantity by using the warehouse to properly pick and dispatch products has mean value of 3.37 which indicates moderately practiced activity. The organization ensures that the product leaves the warehouse clean and damage free for efficient delivery to the beneficiaries scored a mean value of 3.44 which implies a well implemented warehouse activity.

Table 4.7: Descriptive Analysis of Warehouse Management Practices

Statements	Mean	Std.Deviation
Availing appropriate warehouses to temporarily store supplies during disaster situations	3.43	.59
Ensuring the accessibility of the warehouse to deliver the perfect order in disaster situations	3.41	.53
Delivering the right product in the right quantity by using the warehouse to properly pick and dispatch products	3.37	.50
Ensuring the product leaves the warehouse clean and damage free for efficient delivery to the beneficiaries	3.44	.59
Availing sufficient warehouses to temporarily store relief supplies during disaster situations	3.39	.59
Grand Mean	3.40	

Source: Survey Result (2020)

The mean score of the responses the organization avails sufficient warehouses to temporarily store relief supplies is 3.39 which indicate that the organization recognizes the need for warehouse to reduce the suffering of affected people. Generally, warehouse management is well practiced in the organization indicated by an overall mean of 3.40. The standard deviation also lies in between 0.5 & 0.8 which implies slight variation in agreement from the common mean. The findings of the study indicate that the organization is well practicing warehouse management. However, more emphasis should be given to further strengthen the warehouse operation. According to Maharjana & Hanaoka (2017), warehousing is important because it directly helps reduce suffering of affected people by reducing the time to reach them while also encouraging cooperation and collaboration between large numbers of governmental, non-governmental, national and international organizations working in the field of disaster management.

4.3.5 Responses on Distribution Management Practices

Descriptive analysis of distribution management practices are presented in the table below. The mean value for the responses distributing supplies based on the demand for them and on the existing stock has a mean value of 4.19 indicating that the organization exerts its efforts towards maintaining a proper match between demand and supply in disaster situations. Ensuring effective distribution by using reliable transportation systems scored a mean value of 3.11 which is moderate or a little bit less which needs more emphasis. Literature shows that, reliable transportation system enables the relief supply chain, through coordinated transportation nodes and modes, to effectively deliver goods and services in an expeditious and efficient manner. Many aspects of transportation influence success or failure during a response (FEMA, 2019).

Table 4.8: Descriptive Analysis of Distribution Management Practices

Statements	Mean	Std.Deviation
Distributing supplies based on the demand for them and on the existing stock	4.19	.61
Ensuring effective distribution by using reliable transportation system	3.11	.61
Proper organization of the distribution team by encouraging the use of on the spot situational decisions	3.43	.60
Using a well-established distribution center to minimize cost and ease distribution	3.41	.55
Provide appropriate training to the distribution team to make sure that they execute their duties at high level of passion and commitment	3.59	.52
Grand Mean	3.54	

Source: Survey Result (2020)

The mean value for the response proper organization of the distribution team by encouraging the use of on the spot situational decisions is 3.43 implying that the organization is working towards providing appropriate responses to provide emergency supplies to disaster victims.

The use of well-established distribution center to minimize cost and ease distribution scored mean value of 3.41 implying that distribution management is well practiced and implemented in the organization. Providing appropriate training to the distribution team to make sure that they execute their duties at high level of passion and commitment scored a mean value of 3.59 which is practiced well in the organization.

Interview with the senior manager of the organization confirmed that the organization strives to achieve flexibility to accommodate changes. However, the unpredictable nature of disasters makes preparation and planning a difficult task. The manager also added that the distributions of supplies are made with optimum cost by the organization by way of eliminating wrong supplies.

In general, most of the respondents agreed that the organization is well practicing distribution management practices as indicated by the overall mean value of 3.54. The standard deviation also lies in between 0.5 & 0.8 which implies slight variation in agreement from the common mean. Literature suggests that humanitarian aid distribution process is an important activity in disaster management. The existence of the activity could lighten the burden of disaster victims by providing for their needs, shelters and emergency rescue (Mohd et al., 2018).

4.3.6 Responses on Humanitarian Logistics Challenge

The study attempts to identify the challenges faced by the organization related to humanitarian logistics practices. According to the data collected from the respondents, the major external challenges faced by the organization are legislative challenges. From the legislative challenges logistics, accessibility and security situations is ranked first with 78.3% of the responses. Government law and regulation challenges the logistics operation has the second highest rank with 64.4% responses, whereas the response prevalence of conflicting interest between the organization and the government has the lowest rank with 62.1% responses. The findings indicate that accessibility and security situation is the most critical legislative challenge. The major external challenge faced by the organization is economic challenges. As depicted in the table below, 58.1% of respondents agreed that infrastructural conditions affect the humanitarian logistics practices of the organization which is ranked first.

According to the interview with the procurement manager, infrastructural conditions are the major logistics challenge faced by the organization. In most instances, infrastructural conditions are not well developed which leads to longer response times. Moreover, inaccessibility of financial institution in the affected area poses a serious challenge to logistics practices.

The respondent's response also indicates that 54.5% of the respondents perceive inaccessibility of financial institutions as majorly faced challenge which is ranked second and only 30.4% of the respondents perceive the lack of local suppliers that avails relief supplies as logistics challenges.

Table 4.10: Rank Analysis of External Logistics Challenges

External Challenges	Specific Logistics Challenges	Rank	Percentage
Legislative challenges	Accessibility and security situations doesn't allow to operate freely in the affected areas	1	78.3
	Government law & regulation is strict and challenges logistics operations	2	64.4
	Prevalence of conflicting interest between the organization and the government	3	62.1
Economic challenges	Infrastructural conditions affects humanitarian logistics operations	1	58.1
	Inaccessibility of financial institutions in the affected areas which hinders financial transactions	2	54.5
	Lack of local suppliers that avails relief supplies during disaster situations	3	30.4
Technological challenges	Difficulty of coordinating and managing multiple players due to lack of technology	1	81
	Inadequate technological facilities to expedite information flow between the beneficiaries and staff	2	73.2
	Lack of telecommunication infrastructure to help the humanitarian logistics operations	2	73.2
Socio-cultural challenges	Societal and cultural factors hinders distribution of supplies	1	74.8
	Lack of support to the distribution team from the local communities	2	67.5
	Prevalence of staff deployment problems related to community resistance	3	58.7

Source: Survey Result (2020)

From the technological challenges, difficulty of coordinating and managing multiple players is ranked 1st with 81% of the responses, inadequate technological facilities (73.2%) and lack of telecommunication infrastructure (73.2%) are among the technological challenges faced by the organization. The other challenge faced by the organization is socio-cultural challenge. Among the socio cultural challenges, societal and cultural factors scored 1st with 74.8% of the responses. Lack of support to the distribution team scored 2nd rank with 67.5% of the responses. Staff deployment problems are the ranked last with 58.7% of the responses.

Table 4.12: Rank Analysis of Internal Logistics Challenges

Internal Challenges	Specific Logistics Challenges	Rank	Percentage
Recognition of the importance of logistics	Occurrence of unanticipated logistics bottleneck causing unnecessary delays	1	80.3
	Focus on program services rather than investment in systems and processes	2	67.2
	Exclusion of logisticians from the decision process	3	54.1
Employee availability & motivation	Lack of knowledge sharing through group brainstorming sessions & regular logistics workshop	1	74.3
	Prevalence of high level of staff turn over	2	69.3
	Lack of skilled manpower in the logistics department	3	44.7
Inadequate use of technology	Inadequate use of automated systems or mechanisms	1	75.6
	Restricted use of IT for decision making	2	65.5
	Lack of investment in assistive technologies that support information flow	3	58.9
Limited collaboration	Ability to disseminate accurate and timely information is not satisfactory	1	54.1
	Quality and speed of information flow is below the standard	2	34.4
	Lack of access to necessary logistics information from the data base of other organizations	2	34.4

Source: Survey Result (2020)

The internal logistics challenges of the organization are depicted in the table below. The data collected from the respondents reveal that from the challenges related to the recognition of logistics importance, occurrence of unanticipated logistics bottlenecks scored 1st with 80.3% of the responses. Focus on program services rather than investment in system and processes ranked 2nd with 67.2% of the responses. Exclusion of the logistics from the logistics process is the least faced challenge in this category with 54.1% of the responses. Among internal logistics challenges, employee availability and motivation is the major one. From the major challenges in this category, lack of knowledge sharing through group brainstorming sessions & regular logistics workshop ranked 1st with 74.3% of the responses. The prevalence of high level of staff turnover is ranked 2nd with 69.3% of the responses. Lack of skilled man power in the logistics department is perceived by respondents as poorly faced challenge with the 44.7% of the responses.

Another internal logistics challenge is inadequate use of technology. Among the challenges in these category, inadequate use of automated systems or mechanisms to increase logistics efficiency scored 1st with 75.6% of the responses. Restricted use of information technology for decision making scored 2nd rank with 65.5% of the responses. Lack of investment in assistive technologies that support information flow is the least faced challenge in this category with 58.9% of the responses. The other internal challenge is the prevalence of limited collaboration. Among the challenges in these category, ability to disseminate accurate and timely information, is ranked 1st with 54.1% responses. Secondly, quality and speed of information flow is below standard and lack of access to necessary logistics information, are ranked second with 34.4% of the responses.

The finding indicates that the ability to disseminate accurate and timely information is not satisfactory and is perceived by the majority of the respondents as critical challenges. However, various literatures stress the need for effective communication and information flow. When disasters strike, people need food, shelter, blankets, and medicine. But without an effective communications network and collaboration with numerous partners, supplies are left undelivered, and relief workers are unable to do their jobs, communication and collaboration is essential to save lives (Mubaraka et al., 2013).

CHAPTER FIVE

FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The main purpose of the study was to assess the humanitarian logistics practices of Care Ethiopia and its related challenges. Furthermore, the researcher point out the major external and internal logistics challenges the organization encounters. Based up on the results of the study, summary of findings, conclusion and recommendations are discussed in this chapter.

5.2 Summary of Major Findings

Based on the data collected through questionnaire and interviews, the major findings of the research are summarized and presented as follows;

- The grand mean of situation assessment practices was 3.71, which indicate that situation assessment was well practiced by the organization. Assessment of safety and security in the affected areas and assessment of the degree to which normal life and social structure have been disrupted has the highest mean score of 3.95 and 3.73 respectively.
- The grand mean of procurement management practices was 3.39, which indicate that procurement management was moderately practiced by the organization. The procurement practices of avoiding delays in availing the required supplies and implementing quick acquisition of supplies are implemented moderately.
- The grand mean of transportation management practices was 3.31, which indicate that transportation management was moderately practiced by the organization. The use of multimodal transportation and various transport optimization models are perceived by the majority of the respondents as moderately implemented logistics practices.
- The grand mean of warehouse management practices was 3.40, which indicate that warehouse management was moderately practiced by the organization. The warehouse practice of delivering the right product in the right quantity by using the warehouse to properly pick and dispatch products are practiced moderately.

- The grand mean of distribution management practices was 3.54, which indicate that distribution management was well practiced by the organization. However, the practice of ensuring effective distribution by using reliable transportation system is practiced moderately.
- Among the external logistics challenges, in the legislative challenges accessibility and security situation is ranked 1st and prevalence of conflicting interest is ranked last, in the economic challenges infrastructural challenge is ranked 1st and lack of local suppliers is ranked last, in the technological challenges difficulty of coordinating and managing multiple players is ranked 1st and lack of telecommunication infrastructure is ranked last and in the sociocultural challenges, sociocultural factor is ranked 1st and the prevalence of staff deployment problem is ranked last.
- Among the internal logistics challenges, from the recognition of the importance of logistics, occurrence of unanticipated logistics bottleneck is ranked 1st and exclusion of logistician from the decision process is ranked last. From the employee availability and motivation, lack of knowledge sharing is ranked 1st and lack of skilled manpower is ranked last. From the inadequate use of technology, restricted use of information technology is ranked 1st and lack of investment in assistive technologies is ranked last. From the limited collaboration, ability to disseminate accurate and timely information is ranked 1st and lack of access to logistics information is ranked last.

5.3 Conclusion

The study assesses the humanitarian logistics practices and its associated challenges at Care Ethiopia. Depending on the data collected by means of questionnaire and interview, descriptive analysis is conducted using mean and standard deviation. In line with the objective of the study, the following conclusions are drawn;

- The study concluded that situation assessment practices at Care Ethiopia in terms of assessing the safety and security of deploying disaster relief teams in the affected areas, assessing the demography and number of displaced and the size of vulnerable population, assessing the living conditions, food supply, water supply and health services in the affected areas, assessing the degree to which normal life and social structure have been disrupted and the coping mechanisms of the affected population are well executed and practiced.

- Broadly translated the findings confirm that procurement management practices at Care Ethiopia are implemented moderately. The procurement practices of avoiding delays in availing the required supplies, proper management of in kind donation of goods and procurement of required supplies and implementing quick acquisition of supplies is well practiced. However, maintaining a proper match between the requested supplies of relief items and volume of supplies and placing and delivering orders on schedule for purchasing relief items are practiced to a little extent and require more emphasis.
- As per the findings of the study transportation management practices at Care Ethiopia in terms of delivering the right product to the right person at the right time, maintaining efficient transportation of relief personnel to maximize the survival rate of the affected population and quick transportation of relief items are practiced moderately. However, the use of multimodal transportation in non-emergency conditions to achieve flexibility and resilience and various transport optimization models to deliver supplies with least possible cost are practiced to a little extent.
- The study concluded that warehouse management practices at Care Ethiopia are a bit above moderate. Ensuring the accessibility of the warehouse to deliver the perfect order, ensuring the product leaves the warehouse clean and damage free for efficient delivery to the beneficiaries and availing appropriate warehouse to store supplies are practiced moderately. However, availing sufficient warehouses to store relief supplies and delivering the right product in the right quantity by using the warehouse to properly pick and dispatch products are not well practiced.
- To sum up, distribution management practices at Care Ethiopia are well practiced in terms of distributing supplies based on demand and on the existing stock, providing appropriate training to the distribution team to make sure that they execute their duties at high level of passion and commitment and organizing the distribution team properly. However, ensuring effective distribution by using reliable transportation system and the availability of well established distribution center to minimize cost and ease distribution are not well practiced.

- Generally, the major external challenges faced by Care Ethiopia includes accessibility and security situations, infrastructural conditions, difficulty of coordinating and managing multiple players and societal and cultural factors which hinders distribution of supplies. The major internal challenges faced by Care Ethiopia includes occurrence of unanticipated logistics bottleneck causing unnecessary delays, lack of knowledge sharing through brainstorming sessions and regular logistics workshops, inadequate use of automated systems and ability to disseminate accurate and timely information is not satisfactory.

5.4 Recommendation

The researcher recommends the following set of actions to be undertaken by the organization to improve its humanitarian logistic practices and tackle the associated challenges.

- It is highly recommended to implement comprehensive and detailed assessment of relief logistics to capture rapid changes and ensure reconstruction and recovery requirements. Besides, assessment needs to be conducted in disaster prone areas to evaluate infrastructural conditions and vulnerable societies. Triangulation of data obtained from numerous sources is essential to improve assessment practices. Also, the organization can engage in coordinated need assessment with various relief organizations. Ensuring the qualification of the assessment teams is also vital for gathering accurate and reliable data to address the prevailing need. These entail the organization to invest in staff development, trainings and experience sharing platforms which in turn motivate employees and develop resilient teams.
- It is strongly recommended to adopt prepositioning of relief supplies to improve the procurement practice, in most instances it is conducted after disaster strikes which lead to higher price, supply and longer response time. Hence, to avoid these it is highly recommended to resort to prepositioning of relief supplies to avail good quality products at the right quantity and reasonable cost. It would also help to increase resilience and establish flexible supplies in times of emergencies Moreover, appropriate training should be provided for the procurement staffs and the use of IT should be encouraged since it results in faster execution of orders and ensure transparency and accuracy. Furthermore, to achieve the objectives resources should be mobilized efficiently in such a way to avoid misuse and wastages.

- Based on the findings of the study, there is need for improvement of transportation practices. Therefore, it is recommended to maintain reliable means of transport by using multimodal transportation mechanisms. In the meantime, the government can make greater investments in improving infrastructural conditions in disaster prone areas. Encouraging larger investment in IT to track and trace supplies and equipments in relief operations is also beneficial. Providing appropriate communication tools to all vehicles and staff in relief operations helps to eliminate miscommunication and enhance greater coordination.
- In humanitarian operations, the warehouse is used to store relief supplies in order to ensure efficiency, effectiveness and responsiveness of the relief operations hence, larger space should be allocated to them. It is highly recommended to ensure sufficient warehouse space for prepositioning relief items. Furthermore, the organization should encourage the application of IT tools in the warehouse to ease decision making, information flow and to minimize errors. Hence, the organization should make use of various information technology tools like GIS and real-time tracking systems. Besides, the use of logistics information system improves information flow regarding procurement, warehouse and distribution practices which enhances efficiency and effectiveness.
- Based on the findings of distribution management practices, it is highly recommended to ensure effective distribution by using reliable transportation system. Ensuring the accessibility of the distribution centers is essential to deliver supplies at the right time and at the right place. Increasing the logistics staff at field level, monitoring staffs and using various technologies that facilitate timely reporting helps to improve the distribution practices. Encouraging communication and coordination among humanitarian organizations, private sectors and local communities optimizes the flow of managing humanitarian aid distribution process during disaster. Placing sufficient logistician to track and control relief items in last mile distribution is also vital for improving the distribution practices.
- The organization should improve coordination and collaboration by improving the existing platforms for communication and information sharing. These could be achieved by developing system for managing information flow. Moreover, to ensure responsiveness, the organization should not only resort to disaster phase coordination rather pre-disaster coordination should also be encouraged.

Apart from this, access to financial services should be granted to strengthen the resilience of individuals which entails working with the government. Not only this, it is also mandatory upon the government to strengthen policies to ensure access and security in the affected areas and to simplify the custom clearing process for relief items. Focus should be placed on improving the existing system by identifying the potential gaps in the organizations logistics practices. Hence, performance metrics should be adopted to improve the efficiency and effectiveness of the humanitarian operations.

5.5 Suggestion for Further Study

The major limitation of the study is that it does not capture all aspects of the humanitarian logistics practices rather it assesses the logistics practices using five dimensions. Future studies may consider more dimensions of humanitarian logistics. Moreover, the study focused on assessing the humanitarian logistics practices and its associated challenges only on Care Ethiopia. There is a need for similar studies to be conducted in multiple humanitarian organizations in order to assess the logistics practices and identify the challenges. A research study integrating various humanitarian actors is recommended to draw conclusions from informed point.

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APPENDIX

I. Questionnaire

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE

DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

GRADUATE PROGRAM

Dear respondents

I'm a graduate student at Addis Ababa University School of Commerce in the Department of Logistics and Supply Chain Management. Currently, I'm conducting a research entitled 'Assessment of Humanitarian Logistics Practices & Challenges' as a partial fulfilment for the award of Masters of Art Degree in Logistics and Supply Chain Management.

The purpose of this questionnaire is to gather data for the proposed study, and hence you are kindly requested to assist the successful completion of the study by providing the necessary information. Your participation is entirely voluntary and the questionnaire is completely anonymous. I confirm you that the information you share will stay confidential and only used for the aforementioned academic purpose. So, your genuine, frank and timely response is vital for the success of the study. I want to thank you in advance for your kind cooperation and dedication of your precious time to fill this questionnaire.

Instructions

1. In order to make the research outcomes complete, reliable and fruitful, please complete the questionnaire by considering each question thoughtfully and honestly.
2. If you have any questions or difficulties do not hesitate to contact me through
 - Phone No:- +251 939930021 or
 - E- mail address: - Sarahgere1122@gmail.com.

Part I: Demographic Profile of the Respondents

General Information

Please put a tick mark (✓) on the appropriate response category:

1. Gender ☐ Male ☐ Female

2. Age

- ☐ 20 - 30 years old ☐ 41 - 50 years old
☐ 31 - 40 years old ☐ above 50 years old

3. Education level

- ☐ Primary School ☐ College Diploma ☐ Master's Degree
☐ Secondary School ☐ Bachelor Degree ☐ PHD & Above

4. Current position in the organization

- ☐ Senior Management Staff ☐ Project Officer / Coordinator ☐ Procurement staff
☐ Logistics Management Staff ☐ Finance Officer
☐ Other, specify-----

5. Years of experience in the organization

- ☐ Less than 2 years ☐ 2 - 5 years ☐ 6 - 10 years ☐ above 10 years

Part II

a. Level of agreement on humanitarian logistics practices

Please rate your level of agreement regarding humanitarian logistics practices using the following 5 point scales. Put a tick mark (✓) on the appropriate response category:

- | | | |
|---------------------|-------------------------|--------------------------|
| 1. Never practiced | 3. Moderately practiced | 5. Extensively practiced |
| 2. Poorly practiced | 4. Well practiced | |

No.	a. Humanitarian Logistics Practices	Rating				
		1	2	3	4	5
	I. Situation Assessment Practices					
1	Assessing the safety and security of deploying disaster relief teams in the affected area					
2	Assessing the demography and number of displaced population and the size of vulnerable population					
3	Assessment of living conditions, sanitation, food supply, water supply, and health services in the affected areas					
4	Assessing the degree to which normal life and social structure have been disrupted					
5	Assessing the coping mechanisms of the affected population					
No.	II. Procurement Management Practices					
1	Avoiding delays in availing the required supplies in disaster situation					
2	Placing and delivering orders on schedule at a good price for purchasing relief items					
3	Proper management of in kind donation of goods and procurement of required supplies					
4	Implementing quick acquisition of supplies to minimize the severity of disaster situations					
5	Maintaining a proper match between the requested supplies of relief items and the volume of supplies					

No.	III. Transportation Management Practices				
1	Delivering the right product to the right person at the right time				
2	Efficient transportation of relief personnel to maximize the survival rate of the affected population				
3	Quick transportation of relief items to minimize the cost of operation				
4	Using various transport optimization models to deliver supplies with least possible cost				
5	Using multimodal transportation in non-emergency conditions to achieve flexibility and resilience				
IV. Warehouse Management Practices					
1	Availing appropriate warehouses to temporarily store supplies during disaster situations				
2	Ensuring the accessibility of the warehouse to deliver the perfect order in disaster situations				
3	Delivering the right product in the right quantity by using the warehouse to properly pick and dispatch products				
4	Ensuring the product leaves the warehouse clean and damage free for efficient delivery to the beneficiaries				
5	Availing sufficient warehouses to temporarily store relief supplies during disaster situations				
V. Distribution Management Practices					
1	Distributing supplies based on the demand for them and on the existing stock				
2	Ensuring effective distribution by using reliable transportation system				
3	Proper organization of the distribution team by encouraging the use of on the spot situational decisions				
4	Using a well-established distribution center to minimize cost and ease distribution				
5	Providing appropriate training to the distribution team to make sure that they execute their duties at high level of passion and commitment				

b. Level of agreement on humanitarian logistics challenges

According to various literatures the common challenges faced by humanitarian organizations are presented below. Please rate the humanitarian logistic challenge that your company faces using the following 5 point scales. Put a tick mark (✓) on the appropriate response category:

- | | | |
|-----------------|---------------------|----------------------|
| 1. Never faced | 3. Moderately faced | 5. Extensively faced |
| 2. Poorly faced | 4. Well faced | |

No.	Internal Challenges	Rating				
		1	2	3	4	5
I. Recognition of the importance of logistics						
1	Focus on program services rather than investment in systems and processes					
2	Occurrence of unanticipated logistics bottleneck causing unnecessary delays					
3	Exclusion of logisticians from the decision process					
II. Employee availability & motivation						
1	Prevalence of high level of staff turn over					
2	Lack of skilled manpower in the logistics department					
3	Lack of knowledge sharing through group brainstorming sessions & regular logistics workshop for staff motivation					
III. Inadequate use of technology						
1	Restricted use of information technology for decision making					
2	Inadequate use of automated systems or mechanisms to increase logistics efficiency					
3	Lack of investment in assistive technologies that support information flow					

IV. Limited collaboration					
1	Ability to disseminate accurate and timely information is not satisfactory				
2	Quality and speed of information flow is below the standard				
3	Lack of access to necessary logistics information from the data base of other organizations				
External Challenges					
I. Legislative Challenges					
1	Accessibility and security situation doesn't allow to operate freely in the affected areas				
2	Government law and regulation is strict and challenges logistics operations				
3	Prevalence of conflicting interest between the organization and the government				
II. Economic Challenges					
1	Infrastructural conditions affects humanitarian logistics operations				
2	Lack of local suppliers that avails relief supplies during disaster situations				
3	Inaccessibility of financial institutions in the affected areas which hinders financial transactions				
III. Technological Challenges					
1	Difficulty of coordinating and managing multiple players due to lack of technology				
2	Inadequate technological facilities to expedite information flow between the beneficiaries and staff				
3	Lack of telecommunication infrastructure to help the humanitarian logistics operations				
IV. Socio-Cultural Challenges					
1	Societal and cultural factors hinders distribution of supplies				
2	Prevalence of staff deployment problems related to community resistance				
3	Lack of support to the distribution team from the local communities				

II. Interview Questions

1. What can you say about the organizations humanitarian logistics practices?
2. Do you think your organization is well performing in the supply of relief items?
3. Do you believe all the delivered goods and services are procured at the right time from the right supplier in right quality and quantity with the right price?
4. Do you think distribution management is well practiced by the organization?