DETERMINANTS OF HUMANITARIAN LOGISTICS PERFORMANCE: THE CASE OF AFRICA HUMANITARIAN AID AND DEVELOPMENT AGENCY AT DOLLO ADO

By

Girma Dadi

Advisor: Matiwos Ensermu (PhD)

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Approved by Board of Examiners

Advisor	**Signature**	**Date**
External Examiner	**Signature**	**Date**
Internal Examiner	**Signature**	**Date**
Chairman	**Signature**	**Date**

CANDIDATE'S DECLARATION

I do hereby declare to the senate of Addis Ababa University School of Commerce that the work which is being presented in this thesis entitled "Determinants of Humanitarian Logistics Performance: The Case of Africa Humanitarian Aid and Development Agency at Dollo Ado " is original work of my own, has not been presented for a degree of any other university and that all sources of material used for the thesis have been duly acknowledged.

_____ _____

Girma Dadi Date

(Candidate)

This is to certify that the above declaration made by the candidate is correct to the best of my knowledge.

_____ _____

Matiwos Ensermu (PhD) Date

(Thesis Advisor)

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ACRONYMS/ABBERIVATIONS

%	Percentage
3PL	Third Party Logistics
AHADA	Africa Humanitarian Aid and Development Agency
ANOVA	Analysis of variance
CSP	Customer Service Policy
IP&M	Inventory Planning and Management
OE	Order Entry
OP	Order Processing
SD	Standard Deviation
SPSS	Statistical Package for Social Science
SSP	Supplier Service Policy
TAC	Total Acquisition Cost

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ABSTRACT

Third Party Logistics (3PL) providers are service providers who deal with logistics solutions to ensure effective and efficient performance of humanitarian logistics management. This study seeks to establish the determinates of humanitarian logistics performance in case of AHADA at Dollo Ado humanitarian operation. The study adopted explanatory and descriptive research design and utilized both primary and secondary data. Data was processed using descriptive and inferential statistics where SPSS version 20 was used for data processing to establish the effect of independent variables on the dependent variable. As a result, the study found that there is a positive and significant relationship between coordination (.821), availability of fund (.793), competency (.894) and collaboration (.876) and performance at significant at the 0.01 level (2-tailed) using correlation analysis. In addition, coordination (.003), availability of fund (.003), competency (.0001) and collaboration (.01) have a statistically significant contribution to the prediction of the 3PL performance using regression analysis. Further, 3PL service provider performance highly linked with warehouse, inventory, fleet, supply distribution, and maintenance management and all are well monitored and better control system have been implemented accurately. Companies outsource the services of 3PL for many reasons including; to gain access best practices, to improve service quality, to control logistics cost, to increase speed, to properly manage its resources, to spread its risks and to focus on issues that are very much crucial to their existence and future growth. Cost, lead-time, service quality and risk assessment are vital to enhance 3PL service providers performance.

Key Words: 3PL Service Provider, Performance, Outsourcing

CHAPTER ONE
INTRODUCTION

In the first part of the research, it contains background of the study, statement of the problem, study objectives, research questions, and significance of the study, scope of the study, operational definitions and terms including organization of the study.

1.1 Background of the Study

The view of logistics management has been emerging in the general management literature and the supply management research over the last 20 years (Singh & Power, 2009). In today's global business environment corporations are increasingly under pressure to improve their logistics performance in order to remain competitive (Slone, et al., 2007). The supply chain system extends beyond the boundaries of a firm, considering the costs of all material flow until products reach the final costumer.

According to Lee (2007), companies across the globe have been in the era of supply chain competition, that is, competition today is based on supply chain versus supply chain and not business versus business. A better understanding of the complex dynamics has become crucial for superior logistics performance (Chen et al., 2009). Effective supply chain and logistics activities in hard-hitting competition proposes seeking close and long-term working relationships with fewer suppliers and customers but more capable ones, developing interactive relationships with each other's, and working together to solve common problems and jointly plan for the future.

Outsourcing of the logistics functions to outside firms has accelerated due to the changes in the logistics environment. Subsequently, third party logistics concept has been the subject of empirical researches especially since the beginning of 1990s. Although the importance of third-party logistics services has been increasing among companies in business and industries due to the accelerating international trade, the number of the comprehensive studies is negligible (Sankaran and Charman, 2000).

A question is consisting of statements regarding the current situation and future issues of humanitarian third party logistics performance. Predominantly, underdeveloped countries like Ethiopia, with its long history of exposure to and responses to disasters along with its extensive whereabouts with the international community, is a prime case for consideration of these lines of inquiry (Srabotic, 20120. In this paper, it was envisioned to review strands of third-party humanitarianism logistics performance that have been involved in risk and

vulnerability during myriad catastrophes across a range of populations. The study focused on the role of third parties logistics in the capacities for disaster risk management with large – prevention, preparedness, mitigation, response, recovery, and rehabilitation. This study analysed the performance of third party logistics providers within the framework of cost minimizing activities and value added services.

1.2 Statement of the Problem

Ethiopian has equally faced extensive distress internally and outside the country migration that including migration from neighbouring countries (Suee, Angela and Teshome, 2009). Accordingly, the international organization distributes over 554,600 MT and various materials and equipment each year. It creates a vast opportunity for 3PL companies to participate in supporting the humanitarian operations. One of these 3Pls is Africa Humanitarian Aid and Development Agency which has taken UNHCR's huge logistics activities at Dollo Ado humanitarian operations.

AHADA has been participated on distributing blankets, tarpaulins, water storage tanks, submersible pumps, Cement, Iron Sheets to support over 0.8 million people displaced by drought-related causes; 443,700 by conflict; and by flooding 173,400 in DoloAdo each year (UNHCR, 2018). It has established its own logistics capacities and developed its outsourced logistics management in transportation, warehouse management, facility, inventory and fuel management (UNHCR, 2018). As 3PL, the company has been taken the burden of physical facilities, associated cost, providing logistics responsiveness, and demanding to achieve logistics agility. However, uneven logistical operation have been observed in some instances including discrepancy of fuel observed up to 10% wasted, over shipments, disintegrated logistics activity and its process, and faced problematical situation. Some of this crunch circumstances included frequent relocation of UNHCR's supply staffs particularly for international expat staffs and the new comers would try to apply their own logistical leadership and have taken long time to understand the 3PL contract, procedures and the working environment.

In general, AHADA has faced thoughtful challenges that exerted from humanitarian operations such as inconsistently receiving monthly distribution plan, late conclusion of PPA (project partnership agreement) and violating issuance procedures. Accordingly, this study is required to examine the determinant factors of humanitarian logistics performance and to evaluate the logistics performance of third-Party Logistics provider humanitarian operation at

Dollo Ado by exploring the current services it provides and challenges it faces in the industry.

Others like (Sankaran and Charman, 2000) showed that a carefully consideration of a contract is the best method of protection for companies that plan to engage in humanitarian arrangements. Thus, this study evaluated the determinants factor that influence humanitarian logistics performance for delivering effective logistics functions by which inter- and intra-firm activities are integrated to address beneficiaries needs.

1.3 Research Question

The following research questions were identified that to be answered in this study:

- To what extent coordination affects the performance of AHADA as third party logistics in UNHCR's humanitarian operation?
- To what extent fund availability affects the performance of AHADA as third party logistics in UNHCR's humanitarian operation?
- To what extent competency influences the performance of AHADA as third party logistics in UNHCR's humanitarian operation?
- To what extent collaboration affects the performance of AHADA third party logistics in the UNHCR's humanitarian operation?
- What was the logistics performance of AHADA (in terms of warehouse, inventory, and fleet, maintenance and facility management) as third party logistics in the UNHCR's humanitarian operation?

1.4 General Objective of the Study

The general objective of this study is to find out the determinants factors that affect humanitarian logistics in the case of AHADA at Dollo Ado humanitarian operation. In line with this, the specific objectives of this study were:

- To examine the effect of coordination on the performance of AHADA as third party logistics in UNHCR's humanitarian operation
- To investigate the effect of fund availability on the performance of AHADA as third party logistics in UNHCR's humanitarian operation?
- To determine the effect of competency on the performance of AHADA as third party logistics in UNHCR's humanitarian operation?
- To find out the effect of collaboration on the performance of AHADA third party logistics in the UNHCR's humanitarian operation?

- To assess the logistics performance of AHADA (in terms of warehouse, inventory, fleet, maintenance and facility management) as third party logistics in the UNHCR's humanitarian operation?

1.5 Scope of the Study

Since most of the humanitarian activities are working in remote areas, the geographical location of the study is delimited to Dolo area. It is highly disposed to both flash and river floods given the geographical location where extreme rains from highlands of bordering Oromia overflow major rivers in the region. Floods result in losses of property, displacement and damages to infrastructures at times of extreme and heavy rains in Dolo Ado woreda in Liben zone.

Specifically, the study has been undergone on humanitarian third party logistics functions and its associated performance in outsource logistics service. It is particularly included activities carried out by a logistics service provider on behalf of an aid organization and consisting of at least management and execution of supply distribution, fuel and inventory management, facility and maintenance, transportation and warehousing.

In addition, other activities can be included information related activities such as facility management and logistics value added activities including assembly and installation of products, and humanitarian logistics operations management. The study includes logistics outsourcing performance and tries to realize the relationships between interfaces in the supply chains and third-party logistics providers, where logistics services are provided, from basic to customized ones, in a shorter or longer-term relationship, with the intention of effectiveness and efficiency.

The research was based on descriptive and explanatory research design. Descriptive analysis was displayed by employing mean and standard deviation while inferential analysis was used multiple regression and chi square. In conducting this research, both secondary and primary sources of data were suitably used. The researcher obtained data and information from primary sources through self-administered questionnaires and direct personal interviews with key informants such as outsourced company and UNHCR. Furthermore, the study uses an explanatory research design that was suitable to achieve an answer for the proposed research questions.

1.6 Significant of the Study

This study helps to examine the determinant factors for the performance of 3PL logistics & to appraise the humanitarian logistics performance efforts including how-to reduce logistics costs, concentrate on core activities, improve customer service level, integrate the entire logistics activities, It also helps third party logistics on all logistics functions of their customers within competitive advantage. It has its own essence within the logistics to reduce both total costs and maximize customer benefits. The findings and recommendations of this study will support third party logistics firms to provide value added services to their customers because logistics effectiveness can build competitive advantages by providing excellent service to customers, even a value-added service capability.

Furthermore, the study will assist the logistics companies and relief organizations to recognize major areas of concern for seamless movement of goods and services from the source to the end users. It will also help to understand the humanitarian logistics performance measurement and facilitate knowledge of cost, speed, risk and flexibility and their contracts. Additionally, the study will give insights on areas that require additional resources in order to improve the logistics performance and aid support service delivery. Overall, it helps logistics providers to formulate policies and operational planning that will aid effective service delivery for a better and pronounced performance.

Moreover, the study assists the government to have the holistic approach of ensuring growth and development of logistics providers in logistics performance in humanitarian aid across the developing countries. The study also provides relevant data and information that helps the government and other regulatory bodies to formulate and implement such policies that would facilitate effective strategic logistics management on logistics providers. The findings of this study will support the policy makers to review and develop policies that guide humanitarian logistics in Ethiopia

1.7 Operational Definitions and Terms

- **Logistics outsourcing** reflects each of the different aspects of logistics outsourcing; it is possible to bring these definitions into two categories the scope and type of outsourced activities and the use of external companies to perform logistics functions (Jung,2008)

- **Performance** is defined as the evaluation of constituents using efficiency, effectiveness, or social referent criteria to measure how well an organization meets the aspiration levels of constituents (Knemeyer and Murphy, 2004).
- **Performance measurement** is an analytical tool in the performance measurement process that records measures, displays results, and determines subsequent actions and it is a metric that can be used to quantify performance (Grawe, 2009).
- **Transport** is the means by which all raw materials must be conveyed from the land to a place of usage, and all goods must be moved from the factory to the marketplace and from the staff to the consumer (Bell, 2006)
- **Warehousing and materials handling** - viewed to get closer to the core customers including materials handling within the warehouse be planned to ensure safe and speedy receipt, movement, storage and packaging of customer's requirements (Bell, 2006).

1.8 Organization of the study

This study will be organized by five chapters. First chapter will include the introductory part of the study. It includes background of the study, problem statement, study objectives, research questions, significance of the study, scope, justification as well as rationale and gap that a current research aims to fill out. Second, this part of the study will organize related literature review based on searching for relevant literature at home and abroad to understand the relevant theories of third-party logistics and logistics outsourcing management and clarifying the development status of the third party logistics system in the corporation. Third chapter presents the methods of the study: After the second chapter the methodology will be discuss the research approach and methods, sampling and population, sample size determination, data presentation, data collection methods and ethical consideration with reliability and validity test. Regarding the fourth chapter, the results and discussion will be discussed and the last chapter five contains summary of findings, conclusion and recommendations.

CHAPTER TWO
RELATED LITERATURE REVIEW

This chapter literature review includes searching for relevant literature logistics outsourcing, third-party logistics and related theories to understand the relevant theories of humanitarian third party logistics and logistics management; clarifying about logistics and supply chain management and empirical related literature. These are prepared based on an extensive desk review of relevant works (articles and journals). It also presents empirical studies in similar studies and finally the conceptual framework of the study is constructed appropriately.

2.1 Theoretical Framework of the Study

2.1.1 Transaction Cost Analysis Theory

Bonet (2012) states companies are perpetually questioning whether to "make or buy", i.e. choose to either manufacture themselves or buy from the market and they are looking for the most satisfactory organizational form. Several theoretical frameworks tried to inform the decision of outsourcing. Among all theoretical corpus mobilized to justify logistics outsourcing, transaction cost theory (denoted TCT) is the most used. Jaya (2004) noted that the TCT believes that any transaction between two partners creates specific costs. These costs are called transaction costs. They include research provider fees (or information costs); negotiating costs and concluding contracts, control costs of the management and the monitoring of the signed contract.

The choice of governance form is adopted (hierarchy, market or hybrid form) by TCT and it should match the characteristics of the transaction to coordinate (Sohail and Sohal, 2003). These are four in number: asset specificity, uncertainty of the transaction, the frequency of the relationship and evaluation facility of the provider’s service. It is recommended when the assets are highly specific to maintain them internally in order to avoid the risk of dependence with the LSP. This risk can encourage the adoption of opportunistic behavior. Two forms of uncertainty can occur in logistic: first, the "internal" uncertainty corresponding to shipper difficulties in defining future requirements for logistics activities management, second, the "external" uncertainty that is on the growing complexity of the institutional and regulatory environment, the globalization of markets with new organization practices, culture differences, etc. The frequency reflects the degree of repetitiveness of the relationship. As a final point, the provider evaluation facility must also be taken into account in the outsourcing decision. Indeed, when the performance of a service provider is difficult to measure, it is

recommended to internalize the transaction (Bonet, 2012 and Jaya, 2004). Therefore, it might be necessary to incorporate “safeguards” and “credible commitments” into TPL agreements, such as penalty clauses related to poor delivery performance, joint investments in dedicated warehouses or equipment, joint training programs, and exchange of employees between the firms. Accordingly, this theory was relevant in providing understanding humanitarian activities because they can refer to it to make effective outsourcing decisions for 3PL providers and TCT provides relevant insights in choosing outsourcing as a corporate governance structure.

2.1.2 Institutional Theory

Organizations have institutionalized reverse logistics practices because of internal and external pressures. Organizations act in a way that fulfils both customer and legal requirement. It is concerned with the processes by which structures, routines, rules and norms become established as the guidelines for acceptable behaviour (Laosirihongthong, Adebanjo, and Tan, 2013). They stated that pressures from these two parties influence the adoption of environmentally responsible behaviour.

Zhu and Sarkis (2004) expressed as external forces pressure firms to behave in certain ways and not behave in others and its implication for sourcing decision is to avoid fads and firms should use a sourcing approach only if the approach matches the firm‘s strategy, not just because the approach is used by others. Managerial decisions to adopt environmental management initiatives maybe influenced by three institutional mechanisms: normative, coercive and mimetic. Organizations are forced to conform to be perceived as more legitimate due to normative pressures such as customer requirements. Thus, this theory is helps to institutionalize logistics practices because of internal and external pressures customer and legal requirement.

2.1.3 Agency Theory (AT)

This theory is involved in the separation of ownership and control of economic activities between the agent and the principal. Numerous agent and principal problems may arise including conflicting objectives; differences in risk aversion, outcome uncertainty, and behaviour based on self-interest, and bounded rationality (Yazdanparast, Manuj & Swartz, 2010). The contract between the principal and the agent governs the relationship between the two parties, and the aim of the theory is to design a contract that can mitigate potential agency problems (Mello et al., (2008). The “most efficient contract” includes the right mix of

behavioural and outcome-based incentives to motivate the agent to act in the interests of the principal. Creating contracts with supply chain partners that balance rewards and penalties, misalignment can be mitigated (Yazdanparast *et al*, 2010). Thus, humanitarian firms can use the AT theory to mitigate on logistics risks and achieve the optimal value of the outsourced services from the 3PL firms. Because theory provides a useful tool to respond to transaction cost dilemmas through contractual and non-contractual remedies in logistics, it is critical for managers to understand and mitigate logistics challenges associated with behavior uncertainty, relationship management, collaboration and uncertainty in logistics management.

2.1.4 Theory of Replacement

Peter and Kennedy (2014) indicated that it is valuable tool in modeling many systems. They show the quantity-based replacement policy and time-based replacement policy for a single machine problem is used appropriately. These two kinds of policies have been applied to inventory management problems. Machine is replaced when an accumulated product of size q is produced. One has to control the optimal production size q in a quantity-based replacement policy in this model. It is vital to understand that an organization ought to control the expected optimal workload of a particular fleet can handle depending on usage in fleet a management.

A machine is replaced in every period of T in a time-based replacement policy. One has to determine the optimal replacement period T in each production cycle for this model. During the cycle however, the organization should also determine the appropriate intervals for repair and maintenance. An organization has to project the optimal lifetime that a particular fleet should serve the organization after which it is replaced in fleet management. The time-based policy is more preferable than the quantity-based dispatch policy for satisfying timely customer service. Replacement theory is mostly used with the problem of replacement of machines, bulbs and men due to deteriorating efficiency, failure or break down. Replacement is usually carried out under the situations when existing items have outlived their effective lives and it may not be economical to continue with them anymore and the items might have been destroyed either by accidents or otherwise. Thus, this study is vital in humanitarian aid and its associate logistics activities in modeling equipment and technology replacement. This is due to the fact that it reduces time, useful in inventory management problems and vehicle and machines repairing.

2.1.5 Technology Diffusion Theory (IDT)

An innovation is an idea, practice, or object that is perceived as original by an individual or another unit of adoption such as innovation, communication channels, time and social system (Rogers, 2010). IDT derives from sociology and whose aim is to explain the variables of the innovation decision process. The theory claims that individuals can be classified considering their grade of adoption of innovations and as well that this adoption is also influenced by various factors such as relative complexity, compatibility, advantage, trialability, and observability (Ami-narh& Williams, 2012).

That is, an individual who becomes aware of the new product, service or technology, seeks information about the innovation (often from interpersonal sources of communication) and, after considering the relative advantages of the new over the old decides whether or not to adopt. The benefits of the decision to adopt accrue to the decision-maker, and the innovation decision is regarded as wise if over time, those benefits outweigh the costs paid by that same adopter in such a model, (Peter and Kennedy, 2014). Thus, this theory is vital in humanitarian logistics activities as it needs innovation, communication channels, time and social system. This is because an innovation is communicated through certain channels over time among the members of a social system.

2.1.6 The Network perspective Theory (NT)

The performance of a firm depends not only on how efficiently it cooperates with its direct partners, but also on how well these partners cooperate with their own business partners in cooperative relationships (Herbert et al., 2007). The firm's continuous interaction with other players becomes an important factor in the development of new resources. Relationships combine the resources of two organizations to achieve more advantages than through individual efforts (Perrin, 2002). Such a combination can be viewed as a quasi-organization. The network theory (NT) contributes profoundly to an understanding of the dynamics of inter-organizational relations by emphasizing the importance of "personal chemistry" between the parties, the build-up of trust through positive long-term cooperative relations and the mutual adaptation of routines and systems through exchange processes (Peter and Kennedy, 2014). In consequence, humanitarian organizations need to ensure efficient and effective cooperative integration of all logistics activities to gain competitive advantage from the 3PL providers by managing their lead-time. This is because Network theory is descriptive in nature and has primarily been applied in logistics and SCM to map activities, actors, and resources in a supply chain.

2.1.7 Resource Based View Theory (RBV)

In supply chain and logistics literature, it has been constantly raised two influential theories in the study of outsourcing have been transaction cost economics (TCE) and the resource-based view (RBV) of the firm (Herbert et al., 2007). Transaction cost economics specifies the conditions under which an organization should manage an economic exchange internally within its boundaries i.e. hierarchies and the conditions suitable for managing an economic exchange externally i.e. markets (Perrin, 2002). This theory states that firms earn sustained competitive advantage because they have access to strategic resources. This theory deals with competitive advantages related to the firm's possession of heterogeneous resources such as financial, physical, human, technological, organizational, and reputational. It also includes capabilities such as combination of two or more resources (Gilley, 2000). The RBV considers a firm's core competence to be its ability to react quickly to situational changes and build further competencies or dynamic capabilities. Thus, this theory helps a firm's competitiveness that is associated with the configuration of resources and capabilities as the markets evolve. Outsourcing decisions are based on the idea of focusing on core competencies and outsourcing complementary competencies to external partners (Peter and Kennedy, 2014).

Table 2.1: Underpinnings of theories relative to the role of 3PLs

Theory	Theory foundation	Support for outsourcing to a 3PL
Transaction cost economics (TCE)	Firms exist to maximize profit by reducing their transaction costs	Minimizes a firm's transaction costs; as 3PLsgrow in capability they offer services at lower costs
Resource-based theory (RBT)	Firms are comprised of bundles of resources that gives them a competitive advantage	Maximizes a firm's ability to access a range of resources; as 3PLs grow they can increasingly offer various resources
Network theory (NT)	Firms seek efficiency of an entire network through interactions with other firms	Maximizes a firm's ability to leverage relationships; as 3PLs become responsible for larger number of supply chain members their ability to offer greater network interactions increases

Source: Herbert et al. (2007)

A major concern of the resource-based view is how an organization's capabilities develop and affect its competitive position and performance. Failure to manage outsourcing

relationships properly, perhaps through service level agreements, may reduce customer service, levels of control and contact with customers. The assessment of costs of "make or outsource" should include the additional cost burden of managing the outsource relationships (Rechard et al., 2005).

There are other similar theories that included Transaction Cost Analysis (TCA) suggests that transaction costs related to make or buy decision impact the choice between the firm and the market. The transaction costs analysis helps in deciding whether to perform activity in-house or outsource from third party. According to TCA, there are five determinants of transaction costs, namely transaction frequency, asset specificity, uncertainty, bounded rationality, and opportunistic behaviour (Herbert et al. (2007).

Likewise, the network theory (NT) contributes profoundly to an understanding of the dynamics of inter-organisational relations by emphasizing the importance of "personal chemistry" between the parties, the build-up of trust through positive long-term cooperative relations and the mutual adaptation of routines and systems through exchange processes (Rechard et al., 2005).

2.1.8 Summary of Theoretical Framework

This study is extending the resource-based view to address how third party humanitarian logistics operations management provides sustainable competitive advantage. RBT is particularly attractive to logistics researchers in that it focuses directly on the potential value of a firm's internal asset stocks for conceiving and executing various strategies. This is due to the fact that RBT theory described a firm as an administrative organization and a collection of productive resources, both physical/material and human that provides a firm a variety of services. The RBT of the firm places focus on the inside of the firm, its resources and capabilities, to explain the profit and value of the firm. In addition, TCE theory states that a firm's ownership decision is based on minimizing the sum of its transaction and production costs. Outsourcing logistics activities typically reduces transaction costs that include centralized order processing, efficient use of assets, and consolidation of overhead by a third-party. It is useful to note that the relationship between the firm and a 3PL will also incur transaction costs. Further, within NT perspective, outsourcing enables the firm to manage its supply chain as a single entity through the application of relationship building and network coordination. This is a view that is compatible with logistics as it views the entire distribution channel versus each organization as a separate entity.

In addition, this study focused on theory of replacement that is a useful tool in modelling many systems that including maintenance, replacement and fleet. In relation to adapting technology, this study also focused on innovation theory that includes innovation, communication channels, time and social system.

Thus, thirsted has as a consequence far brought support for the role of the 3PL from the view of TCE, RBT and NT. Each theory offers its own perspective regarding the performance of the 3PL in humanitarian operations. Even though each of these three theories provides insights into the current role of the 3PL, none of the three theories is fully sufficient by itself to offer a complete explanation. The three theories are complementary to one another and collectively provide full support for 3PLs. Combining perspectives illustrates a more complete view of firm motivation in using 3PLs that is reduction in costs, access to resources, and relationship utilization. All three motivations have been critical in enabling the rise of the 3PL as firm competitive pressures have placed greater focus on humanitarian practices. In turn, the 3PL has been able to obtain specific assets and build a wide range of capabilities it can offer at a lower cost. Thus, this study applied and used resource based and transaction and network theories along with theory of replacement for maintenance and fleet management and adapting technology for warehousing and inventory.

2.2 Theoretical Literature Review

2.2.1 Definitions and Concepts of Humanitarian Logistics

There is no actual consensus on the definition of the term on logistics outsourcing even if there is a vast literature on outsourcing (Gilley, 2000). Perrin (2002) agreed that the lack of a uniform definition of the outsourcing, particularly because of the proliferation of approaches used to address this issue.

Razzaque and Shengv (2008) well-defined it to reflect each of the different aspects of logistics outsourcing; it is conceivable to get these definitions into two categories each one containing aspect of the logistics activities that had been outsourced to LSP. The first distinguishes the scope and type of outsourced activities. It is to say third-party logistics involves the use of external companies to perform logistics functions that have traditionally been performed within an organization.

The functions performed by the third party can incorporate the entire logistics process or selected activities contained by that process. Jung (2008) contemplates that third-party logistics are activities carried out by a logistics service provider on behalf of a shipper and

consisting of at least management and execution of transportation and warehousing. Besides, other activities can be included, for example inventory management, information related activities, such as tracking and tracing, value added activities, such as secondary assembly and installation of products, or even supply chain management.

Second, it can be defined to reflect the duration and nature of the relationship between the shipper and the Razzaque and Shengv (2008) terms logistics outsourcing as relationships between interfaces in the supply chains and third-party logistics providers, where logistics services are offered, from basic to customized ones, in a shorter or longer-term relationship, with the aim of effectiveness and efficiency. This extended definition range logistics activities supported from basic to customized logistics activities and refers to short- and long-term extent and the expected goals of effectiveness and efficiency.

Council of logistics management (2009) states as third-party logistics as outsourcing all or much of a company's logistics operations to a specialized company. It is actually Third-party logistics provider is a firm which provides multiple logistics services for use by customers. Preferably, these services are integrated, or "bundled" together by the provider. They target to offer one-stop customized solutions to service users. These firms facilitate the movement of parts and materials from suppliers to manufacturers, and finished products from manufacturers to distributors and retailers (Supply Chain Council, 2009).

2.3 Logistics Performance Measurement

Performance targets on meaningful when they can be expressed quantitatively, and the definition of performance measurement varies among different authors. Some of these definitions are included the process of quantifying the efficiency and effectiveness of action; the process of evaluating performance relative to a defined goal; the process of evaluating performance in terms of explicit short-, medium-, and long-term objectives and reporting the results to management and the process of transferring the complex reality of performance into a sequence of limited symbols that can be interconnected and reproduced under similar circumstances (Gunasekaran *et al*., 2001).

Knemeyer *et al*., (2003) stated that management accounting techniques became the accepted method of performance measurement for manufacturing plants and their distribution operations. It focused on the performance measurement of the entire business unit (typically division level and plant level) and examined performance criteria, standards, and measures. Performance refers to the nature and quality of an action that an organization carries out to accomplish its principal missions and functions for the generation of profit (Mello *et al*.,

2008).Performance measurement is an analytical tool in the performance measurement process that records measures, displays results, and determines subsequent actions and it is a metric that can be used to quantify performance (Grawe, 2009).

Logistics outsourcing originated in the 1980s and after more than 20 years of development, it has become a certain number of industries in developed countries. Increasingly, the proportion of the third-party logistics in the whole logistics market is nearly as high as 76 % in Europe and is nearly 80 % in Japan. Conversely, there is still a big gap compared with developed countries because of many reasons such as imperfect management system and so on although the logistics industry has had a relatively rapid development in recent years in China (Yiwen Li, 2008). They acclaimed that logistics outsourcing is undertaken by a proven 3PL provider. There are economies of scope and scale available for the 3PL, the 3PL has a significant cost (-20 %) and service advantage. Outsourcing is acceptable to the customer base and the 3PL has a better inventory control and warehousing management and there is a culture match between the 3PL and the user (Edward, 2002).

Besides, the arrangements between customers and providers of outsourced logistics service reflect the growing complexity in relationships with emphasis placed on high levels of formality and longer-term commitments, as opposed to arm's-length transactional arrangements. In view of that, Knemeyer *et al*., (2003) defined third-party logistics as a relationship between a shipper and third-party which, compared with basic services, has more customized offerings, encompasses a broader number of service functions, and is characterized by a longer term, more mutually beneficial relationship.

Yiwen (2008) sated that early conceptualizations of third-party logistics distinguish logistics outsourcing quite broadly, as employing an outside company to perform all or part of another company's materials management and product distribution functions. Over time, the concept of third-party logistics evolved toward service offerings of greater complexity, usually encompassing a combination of services (Ojala *et a*l., 2006). Further, Mello *et al.,* (2008) provided all-inclusive logistics outsourcing description as third-party logistics providers as asset- or non-asset-based external parties that may be consulted for any and all matters related to logistics service and that are often engaged in the strategic coordination of their customers' supply chain activities (Zacharia et al., 2011).

Alan *et al*, (2007) cleared the activities of third-party logistics as the management of outsourced logistics, transportation and distribution activities. 3PL is commonly used as

the term to describe an external provider who manages outsourced activities on behalf of the shippers or customers whose business processes they support. 3PL services typically include outbound transportation; warehousing; inbound transportation; freight bill auditing/payment; customs brokerage; freight forwarding; customs clearance (Knemeyer *et al.*, 2003).

2.3.1 Cost

The decision on whether to achieve logistics activities in-house or outsource from 3PL providers depend on evaluation of cost or service trade-offs (Selviaridis and Spring, 2007). Costs associated with performing logistics activities in-house and investment in capital assets is traded-off against service provider fees and the lowest cost solution should then be selected. On the other hand, cost is not the single most important decision variable and logistics service issues are also considered. The decision to contract-out logistics can also be driven by resource and capability considerations (Bolumole, 2001). Forming relationships with 3PL providers is an efficient and effective means of achieving the required service without investing heavily in assets and new capabilities. In this way, firms can focus on their core business. Likewise, changes in the business environment, increased competition, pressure for cost reduction and the resulting need to restructure supply chains are often quoted as motives for the formation of alliances with 3PL providers (Berglund and Peters 2000).

2.3.2 Lead-Time

Lead-time is the total time that elapses between an order's placement and its receipt. It includes the time required for order transmittal, order processing, order preparation, and transit. An increase in delivery performance is possible through a reduction in lead-time attributes such as on-time delivery, on time orders fill and order completeness (Bolumole, 2001).

Various factors that can influence delivery speed include vehicle speed, driver reliability, frequency of delivery, and location of depots. An increase in efficiency in these areas can lead to a decrease in the inventory levels (Berglund and Peters 2000). Lead-time has serious effects on the coordination among logistics partners and thus a key aspect in logistics service. As a result, lead-time reduction can be noticed as a coordination enabler in supply chain. In some studies, lead time reduction has been viewed as an investment strategy. Lead-time reduction is considerably emphasized in waste reduction, especially in excess inventory (Selviaridis and Spring, 2007).

2.3.3 Quality

Quality is determined by comparison of the customer expectations against the perceptions of service offered. The delivery of high-quality logistics services includes functional aspects such as timeliness and ordering procedures and technical aspects such as order accuracy and order condition (Bolumole, 2001). The level of performance with respect to both aspects should be based on an accurate assessment of what the customer truly values. Traditionally, logistics managers have attempted to assess their performance through an "operational focus" by relying on internally generated measure sand using the measurement of quality to infer customers' opinions of the provided service. Logistics managers have often overlooked an outward orientation toward customers that calls for competing on superior customer value delivery. The only way a firm can gain competition advantage is to outsource requirements so that the outsourcing will help to compete with others. Accordingly, quality is a relevant factor and can be either a positive or a negative influence on outsourcing (Davis & Mentzer, 2006).

2.3.4 Risk Assessment

Risk is an activity or undertaking that may have an adverse impact on the achievement of an objective such as outsourcing objective Risk is an uncertainty or a potential financial loss inherent in an investment decision. It is a possibility of an outcome deviating from the expected earnings (Lysons & Farrington, 2006). Risk assessment is a systematic process of evaluating the potential risks that may be involved in a projected activity or undertaking. Risk assessment is the process of identifying, analyzing and evaluating hazards or uncertainties and determination of the likelihood of occurrence of each risk factor (Tummala, and Schoenherr, 2011). Thus, risk assessment is concerned with identifying and evaluating all potential risks in outsourcing 3PL providers.

The probability of the anticipated risk occurring or not occurring at all is a matter of the judgment of the risk assessor on the outsourced company. Through risk assessment, logistics outsourcing can be seen as a way of reducing a company's risk by sharing it with suppliers or service providers. Investment in logistics equipment and networks always incorporates a great deal of risks (Lysons & Farrington, 2006). Outsourcing of Third party Logistics providers play a crucial role in spreading logistics risk and it is important for a company to select the right 3PL providers from the beginning. In order to qualify for appointment, the 3PLs providers should possess the necessary processes, quality, technology, employees and equipment. The volatility of Markets, cut-throat competition, bureaucratic government

regulations, restrictive financial conditions and technological advancements all change extremely quickly and keeping up with these changes is risky, especially when it requires a significant investment. By outsourcing company can spread its risks across a number of suppliers (Tummala, &Schoenherr, 2011).

2.4 Empirical Literatures

2.4.1 Logistics Function Performance Measures

Langley et al., (2005) found that the growth in the 3PLmarket of around 20 per cent per annum, this also means that existing customers were outsourcing significantly more to 3PLs. The study also realized that the most common logistics services outsourced to 3PL providers were transportation and warehousing, although during the last 10 years many other services have increasingly been outsourced, including customs clearance and brokerage, freight forwarding, cross docking/shipment consolidation, and order fulfilment and distribution. Finally, the study concluded that the 3PL industry is still growing, with regional expansion, the development of services, integrating information technologies and developing customer relationships as key focuses for third-party providers (Langley et al., 2005).

Aldo Srabotic˘ and MitjaRuzzier (2012) investigated key success factors in logistics outsourcing. They found that the main common factors leading to logistics outsourcing success, after the right third-party service provider has been selected, are improved service levels and commercial viability for parties, joint vision and objectives of the partnership, clear roles, top management commitment and support, communication and trust. The results of the case analysis shed light on what is the key to a successful outsourcing relationship and indicate how the architecture of logistics outsourcing can be analysed and improved. Anne (2006) examined the underlying principles of logistic performance measurement systems from the military and commercial sectors and applying them to disaster relief operations. These principles were used to develop four indicators which measure logistic performance in terms of the trade-offs of speed, cost and accuracy: appeal coverage, donation-to-delivery time, financial efficiency, and assessment accuracy. His study concluded by describing one of the key issues which may arise when a performance measurement system is implemented, which is how to manage the cultural change that is needed in organizations unaccustomed to performance measurement.

2.4.1.1 Warehousing Performance

Performance measurement in the warehouse industry traditionally employs a set of single factor productivity measures that compare one output to one resource (or input).Different factors have been employed to operationalize warehouse performance with a visible repetition in the use of some of these factors indicators to assess the performance of the warehouse namely quality, response time, total warehouse cost, and productivity so as to operationalize warehouse performance metrics (Johnson, 2010). For describing the warehouse performance and improvement, the first step is to perform a process mapping. It is a useful way for depicting all activities that take place in the warehouse. In general, a company's warehouse operations can influence the firm's corporate performance in manners such as receiving, storage and shipping (dispatching) in relation with quality, cost, speed and productivity. Receiving, Storage as well as picking and shipping has their own cost, quality such as perfect order fulfilment incorporating accuracy and response time as a speed should be measured and continuously improved (Shlomo and Gal, 2014).

2.4.1.2 Inventory Management Practices

Ying (2002) stated that for a reduction in depreciation, pilferage and wastages in inventory, sensible and wise management of inventory key while ensuring availability of the materials as at and when required. Ferrer, Santa, Hyland and Bretherton (2010) emphasised that for maximization of profits and survival of a business, which are the fundamental objectives for every firm, systematic and that being the case, specific performance indicators have been proved to depend on the level of inventory management practices. Elmuti (2002) stated that lean production principle which was associated with reduced inventories. Their argument was that as a way of reducing storage fees, handling and waste, profit improvement were realised due to interest savings and inventory reduction as the main reason for that.

Knemeyer and Murphy (2004) estimated by literature, these savings to be in the range of 20 - 30 percent (%) of profit realised. Moreover, they noted that in this competitive environment, Inventory Management was gaining more and more attention and awareness. The inventory management system supporters argue that surplus inventory will adversely interrupt the net cash flow in affirm. The main costs incurred in holding inventory, are the capital costs includes interest or opportunity and the physical cost incudes storage, insurance and spoilage. The impact of inventory strategy in a firm should be mainly on the return on investment which should go high because of the inventory reduction and any other cost correlated to that. JIT also has huge impact on the quality of the product and the organisation/order in which the

product is produced. Products ought to only be produced when an order of the item is received by a firm (Ferrer et al., 2010)..

2.4.2 Others Logistics Performance Measures

On other hand, Irina and Mirela (2014) showed that a carefully designed contract is the best method of protection for companies that plan to engage in outsourcing arrangements. Outsourcing logistics involved the transfer of some logistics activities or processes to an external provider. Sankaran and Charman (2000) reported on an inductive, qualitative investigation into third party logistics contracts whose express purpose was to inform subsequent case study research into the same. This study used appropriate research methodology which involved going back-and-forth between data gathering (the principal source of data was flexible interviews) and analysis, which was conducted through formally specified coding techniques. The products of the induction include concepts and categories that are relevant in the study of third-party logistics contracts, as well as their synthesis into an anatomical description of such contracts. The authors also made appropriate conclusion and draw several inferences from their data that bear upon future empirical research into third party logistics contracts, especially their effectiveness.

Ying (2002) also stated that third-party logistics services have thus taken this role as a link in the globalization of economic activities The significant of 3PL services utilized as perceived by the previous work were inbound transportation, outbound transportation, warehousing , in-plant material handling, freight forwarding, scrap disposal, fleet management, demand forecasting, inventory management, order entry and processing, customs clearance, product labeling, packaging, after sales support, procurement, distribution and channelling (Alan et al, 2007). It is an appropriate example that as globalization began to dawn, freight forwarders began to emerge to support the increased movement of goods across the world. Transportation and distribution companies began to see an opportunity to operate warehouses and other parts of the logistics process (Ying, 2002).

2.5 Identified Research Gap

Studies such as (Sankaran and Charman, 2000) showed that a carefully designed contract is the best method of protection for companies that plan to engage in outsourcing arrangements. From the empirical studies found, it is marked that the main focus has so far been on the role of logistics on supply chain performance within the private, i.e., commercial supply chains and public sector companies and few studies focused on humanitarian aid sector.

Within the focus of disaster management, the major functions are the functions not performed by the firm. These can include transportation carriers, warehouses, bankers, brokers, and suppliers to these functions, such as stevedores and others. The performance of the humanitarian logistics should be also measured by these major functions of outsourced companies and aid organization. This is because relief logistics depends on swiftness and agility of the logistics support service in the area. This should be the heart of humanitarian logistics. The above-mentioned studies have also majorly focused on third party humanitarian logistics performance management without clearly providing adequate solutions to overcome service related challenges.

2.6 Conceptual Framework

The conceptual framework of the study examined causal relationships between dependent and independent variables shown below:

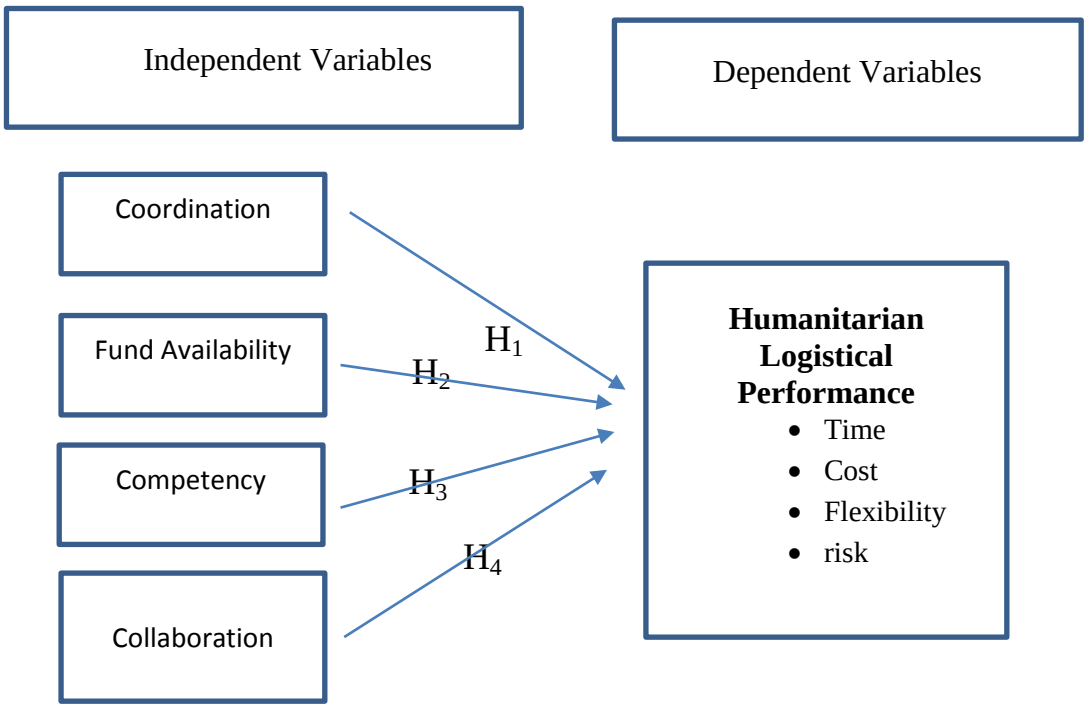


Figure 2.1: Conceptual Framework – Adapted from Mohammed (2013)

Logistics management practices were reviewed with the following for variables namely time, cost, and flexible and risk.

2.6.1 Determinant s of Humanitarian Logistics Performance

2.6.1.1 Coordination

Humanitarianism defined as managing information; mobilizing resources and assuring accountability; orchestrating a functional division of labour in the field; negotiating and maintaining a serviceable framework with host political authorities; and providing leadership (Minear, 2002). Coordination is important to improve service delivery effectiveness. Indeed, while effectiveness is rarely defined, it is most often given as the reason why achieving coordination among service providing agencies is important (Sanders, and Nix, 2011). An effort to reduce duplication, often framed as securing or improving organizational efficiency, is also frequently offered as a rationale for why humanitarian organizations should seek to coordinate their assistance operations (Minear, 2002). Thus,

- $\mathbf{H_1}$ – coordination has positive and significant effect on humanitarian logistics performance of the 3PL company

2.6.1.2 Availability of funds

Any effort to support effective synchronization among HOs that goes against the donor conditions may lead to the termination of Funds. Effective logistical coordination requires that firms have equal and constant funds to enable them to participate in the shared efforts. Lack of constant flow of funds has also greatly affected this desired and necessary coordination. Finally, organization staff competence driven by organization mandate may determine how and whether responds to certain disasters and emergencies (Sanders, and Nix, 2011).

- $\mathbf{H_2}$ – Availability of funds has positive and significant effect on humanitarian logistics performance of the 3PL company

2.6.1.3 Organizational Competency

According to Sanders, and Nix (2011), competency in logistics can be expensive if a company opts to invest in it. This is because competency is a source of sustainable competitive advantage that Humanitarian Organizations can have. Kovacs and Karen (2006) claim that in highlighting certain levels of specialization in the provision of services, specialisation levels of the staff such as logistics professionals, health among others can be available in a humanitarian organization.

- $\mathbf{H_3}$ – Competency has positive and significant effect on humanitarian logistics performance of the 3PL company

2.6.1.4 Collaboration

Logistics technology goes even further in examining how to collaborate with business partners seamlessly and synchronize inter-organizational business processes to produce greater efficiencies and realize more value (Ross 2003). Over-all, based on the degree of collaboration and the number of participants, supply chains could be classified into three categories: partner collaboration, value chains, and supply networks (Poirier, 2002). Third-party logistics (3PL) can be used to improve the efficiency of transportation by outsourcing. Vendor managed inventory (VMI) is another type of partner collaboration based on sharing inventory information. For instance, Dell shares sales order delivery notes with FedEx, its 3PL provider, to deliver computers to its customers. Through intense collaboration, they leverage the inventory, transportation, facility and information to maximize the total benefit of the supply chain. A value chain is based on intensive information exchange through business documents or, more formally, data objects, such as inventory status, actual demand, and various forecasts (Ross 2003).

- **H_4** – Collaboration has positive and significant effect on humanitarian logistics performance of the 3PL company

CHAPTER THREE
METHODS OF THE STUDY AREA

This part of the study presents the research method and approach along with its sampling and data analyses methods. It also presents its primary and secondary sources, data collection methods such as questionnaire and interviews including ethical consideration and test instruments.

3.1 Description of the Study Area

Somali region is highly disposed to both flash and river floods given the geographical location where extreme rains from highlands of bordering Oromia overflow major rivers in the region. Floods result in losses of property, displacement and damages to infrastructures at times of extreme and heavy rains in the region. During belg season, it approximations that an average of 159, 007 people is affected by flood in Dolo Ado woreda in Liben zone. Dolo town is located in Liben zone, on the border with Somalia (UNHCR, 2020).

3.2 Research Approach

In this study, the researcher employed appropriate research approach. The collected data generated from the questionnaire that were analyzed and interpreted using statistical models such as percentages to cover the entire population of the study to give the mean and standard deviation. In addition, this study examined empirical investigation of cause and effect relationship between variables using statistical techniques. Qualitative research, on the other hand, asks broad questions and collects word data from phenomena or participants. The researcher looks for humanitarian logistics performance activities and describes the information in 3Pl provider's activities and performance and patterns exclusive to that set of participants.

3.3 Research Design

Creswell (2005) stated that research designs are invented to enable answering the research questions as validly, objectively, accurately and as economically as possible. The study examined the cause and effect relationship among coordination, availability of funds, competency and collaboration and humanitarian performance. The study also described characteristics of warehousing and inventory control (fuel) and fleet management, distribution of supplies and internal logistics in terms of facility and maintenance management. In addition, the study was suitable to achieve an answer for the proposed research questions. Thus, the study used descriptive and explanatory research design.

3.4 Unit of Analysis

The study unit of analysis is individuals namely employees of the 3rd party logistics provider and UNHCR of humanitarian logistics operations requester.

3.5 Data Type and Sources

The researcher used both primary and secondary data. The primary data were collected through questionnaire from employees of humanitarian third party logistic provider and UNHCR. In addition, questionnaire, primary data were collected from interview checklist, articles and journals. It is believed that primary data is the information that the researcher finds out by his regarding a specific topic. The main advantage with this type of data was supposed to collect data with the research's purpose in mind. It implies that the information resulting from it was more consistent with the research questions and objectives.

3.6 Target population

The researcher identified the target population to generalize the results of the study. Therefore, the total target population of the study included 80 employees of staff member of the selected third party logistics provider and UNHCR. They are working as procurement officer, transport officer, warehouse keeper, warehouse controller, warehouse supervisor, facility officer, and fuel and maintenance officers. All 80 employees were included in this research; thus, the study uses census method. In addition, the sample size of interviewees is taken as fifteen interviewees using Bertaux (1981) who stated the minimum sample size for interview is fifteen.

3.7 Data Collection Method

The data were collected by questionnaire and organized and tabulated to describe the state of happenings. As well, an interview checklist was prepared and collected qualitative data.

3.7.1 Questionnaire

Questionnaire is used for data collection since it was easy to get a wide range of data in a short period of time from each respondent. It is adapted from Mohammed (2013) as his study is relevant to this study. The designed questionnaires included both close and open-ended questions. But more of five point likert scale measurement questions were intended because five point likert scale measurement is commonly recommended to be more appropriate and easier to understand by the respondents and it is the common rating scale that allows respondents to rate quality from high to low or best to worst.

3.7.2 Interview

Interview sessions were prepared to gather pertinent information about the performance of the selected third-party logistics organization. The study applied phone interview due to Covid 19. It tried to cover up to fifteen employees and managers who were working in logistics department of the selected third-party logistics organization (AHADA) and UNHCR.

3.8 The Credibility of the Research

In this study to reducing the possibility of getting the wrong answer means that attention has to be paid to two particular emphases on research design: reliability and validity.

3.8.1 Validity

Face and content validity were endorsed in order to confirm the appearance, relevance and representativeness of the survey in this study. It will be carried out among different individuals included the logistics and supply chain operations and experts in this area. At the same time, the survey were also pretested with ten active and willing employees who are working in the area. Using selected relevant literatures and researches, questionnaire and interview checklist was adapted. Furthermore, the survey was designed based on relevant theories and checked by experts, the instrument used was achieved the requirement to measure the intended issues.

This study conducted a pilot testing study to see whether the questionnaires can obtain the results which the study required for meeting objectives and hypotheses of the research. Accordingly, twelve questionnaires were dispatched to different supply chain experts and humanitarian aid specialists in Addis Ababa to check its reliability.

3.8.2 Reliability

The level of reliability of the instrument that is the consistency of the variables were checked with the Cronbach‘s alpha statistics. Cronbach‘s alpha is an index of reliability associated with the variation accounted for by the true score of the underlying construct (Crosswell, 2009). Cronbach‘s Alpha‘s can only be measured for variables which have more than one measurement question. It is widely known that 0.5 is a sufficient value, while 0.7 is a more reasonable Cronbach‘s alpha.

Table 3.1 : Cronbach Alpha Test Result

	Cronbah's Alpha	N of Items
Coordination	.848	3
Availability of Fund	.854	3
Competency	.836	3
Collaboration	.814	3
Performance	.891	8
Over all	.886	20

Source: Survey result, 2020

The overall Cronbach alpha of the scales used in this study was rated as excellent. Consequently, it indicates the reliability of the scales was very high depicting a very strong internal consistency among the measurement items and the selected instrument accurately measures the variables selected. In this regard, values of 0.80 or greater were considered the data collection instrument is reliable (Kraeger, 2011).

3.9 Data Analysis and Interpretation

The research data was analyzed by using statistical and descriptive methods. SPSS (Statistical Package for Social Sciences) version 20.0 was used to compute and analyze the data. After all the necessary data are collected, they were edited, classified, organized and analyzed in groups on the basis of common characteristics.

First, performance gap analysis was conducted using Chi square based on the mean responses of perception of third-party logistics provider and expectation of UNHCR.

Second, the statistical tests in data analysis were included frequency, percentages, mean and standard deviation. In addition, researcher used correlation and multiple linear regression methods. Finally, reasonable explanation of data and interpretation were accomplished. The model of the study is:

$$Y=a+b_1X_1+b_2X_2+b_3X_3+b_4X_4+ \mathbf{e}$$

In the above equation,

- Y = Performance of third-party logistics provider
- X1 = Coordination
- X2 = Fund Availability
- X3 = Competency
- X4 = Collaboration
- e = Error

3.10 Ethical Consideration

The research study was conducted by ensuring professional ethical standards during the organization of this study.

3.10.1 Informed consent

The researcher applied oral an informed consent to solicit the willingness of the individual to participate on this research. The participants were given information on the purpose of the study, the time it takes, the procedures to be followed, and benefits before starting the research. It is only after getting an informed consent that the participants were required to move to the next steps. The potential participants were also be informed that he/she can refuse to answer any question and that he/she can quit the interview at any point. If the participant has any questions, the researcher was required to respond adequately.

Accordingly, employees were given the privilege of not writing their names and other identifications providing.

3.10.2 Confidentiality

The assurance that the information they provide will be kept confidential and no respondent were forced to fill the questionnaire unwillingly without his/her consent. The researcher assured information that participants provides during the study was kept confidential. The raw data was coded, and recorded interviews shall not be used for any other purpose than the intended purposes.

CHAPTER FOUR
RESULTS AND DISCUSSION

This chapter presents results and discussion of the study. It shows how data are presented, analyzed and interpreted and in incudes a response ate and demographic profile of respondents, the result presentation and analysis of responses on in the selected project.

4.1Response Rate

As indicated in the chapter three, the target population of the study was 80 staff of AHADA and UNHCR and the sample size of this study was computed as 58.

Table 4.1 Response rate

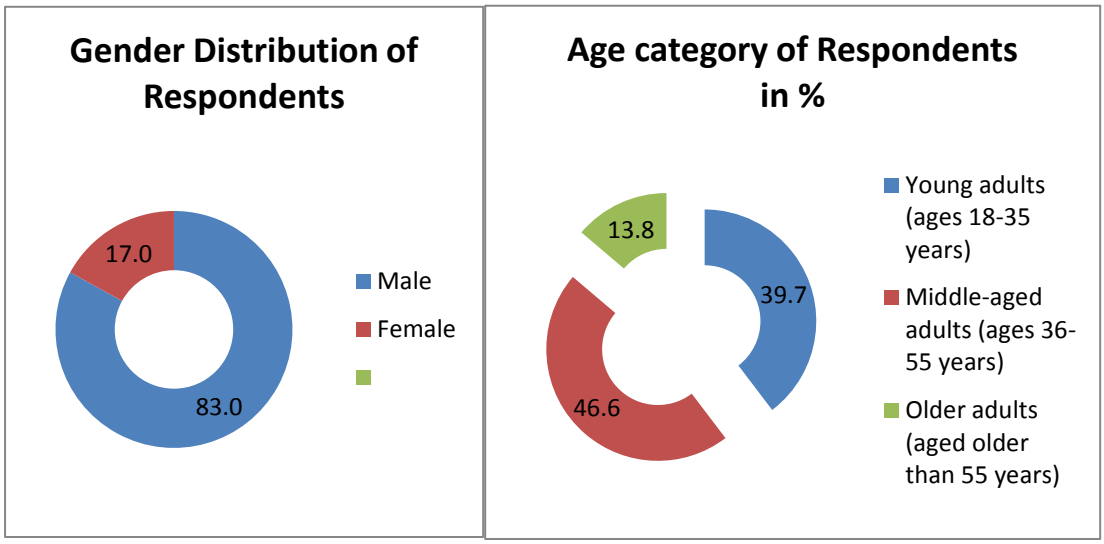
Population	Target	Returned	Rate
UNHCR	36	27	75%
AHADA	44	31	70%
Total	80	58	73%

Source: Survey result, 2020

Out of distributed 80 questionnaires, a total of 58 questionnaires were returned which displayed 73% response rate. It is actually below 80% due to Covid 19 outbreak.

4.2Demographic Profile of Respondents

The demographic characteristics of the respondents include gender, age, and educational background, service years serving in AHDA and UNHCR.



Source: Survey result, 2020

Figure 4.1: Demographic Profile of Respondents – gender and age

Before analyzing data, the background information on the staffs at different level has been shown throughout the below table and diagrams. The study found that, among the 80 sampled respondents the study conducted this research on, 17 % of them were female and 83 % of the total respondents were male. The study tried to maintain gender distribution but due to the nature of the profession the number of females were low. The above table displays that, among 80 sampled respondents, 13.8 % of the total respondents were of age below 35 and above 18 years, 46.6 % of them were of age 36 to 55 years, and only 14 % of the respondents were older adults or aged older than 5 years. This could be considered the study gathered information from well experienced and aged people who acquired knowledge in humanitarian operation area.

Table 4.2: Demographic Profile of Respondents

Education Level			Management level			Working Service		
Category	Count	%	Category	Count	%	Category	Count	%
Diploma and below	8	14	Low	12	21	Below 5	18	31
Degree	39	67	Medium	22	38	6 - 10 years	20	34
Masters and above	11	19	Top	24	41	11 - 15 years	13	22
						16 years and above	7	12
Total	**58**	**100**	**Total**	**58**	**100**	**Total**	**58**	**100**

Source: Survey result, 2020

The above table displays that, among 80 sampled respondents, 14% of the total respondents had diploma, 67% of them were university first degree graduate and the remaining 19% of them attended university postgraduate (masers and above). Similarly, the above table also shows that, among the selected respondents, 31% of the sampled respondents worked in their respect organization for fewer 5 years; 34% worked for 6 to 10 years and 34% of them worked for more than 11 years. Similarly, the study found the respondents' working position, 21% of the sampled respondents were worked in lower position, and 79 % of them worked in medium and top position. In this case, top position includes specialist, senior staff and managerial position; medium level experts, junior position including associate officers and low position meant store keepers, maintenance and truck assistance. The study was delighted that most of the respondents were university graduated (well educated), worked in humanitarian projects and they were passed most of their working time in the selected project. It was believed that the sampled staffs would provide appropriate responses for the humanitarian logistics performance effectively.

4.3Response Analysis

This response analysis presents respondents' opinion regarding their level of agreement on four dimensions with 12 questions and performance. The results were interpreted based on the following measurement scale intervals or range; 4.51-5.00 excellent or very good, 3.51-4.50 good, 2.51-3.50 average or moderate, 1.51-2.50 fair and 1.00-1.50 poor (Anne, 2006).

4.3.1 Responses on Independent Variables

Table 4.3: Respondents Responses on Four Variables

Dimensions		Mean	sd	Grand mean
Coordination	Harmonized between UNHCR and AHADA positively affects the performance of AHADA.	3.72	1.268	3.66
	Effective information flow positively affects the performance of AHADA.	3.64	1.307	
	Synchronizing multiple information flows positively affects the performance of AHADA.	3.6	1.242	
Availability of Fund	Availability of funds positively affects the performance of AHADA.	3.6	1.297	3.59
	Assurance of funds positively affects the performance of AHADA.	3.57	1.230	
	Adequate funds positively affect the performance of AHADA.	3.6	1.270	
Competency	Having specialized staff positively affects the performance of AHADA.	3.47	1.341	3.62
	Be an experienced in humanitarian assistance positively affects the performance of AHADA.	3.67	1.205	
	Having sufficient personnel positively affects the performance of AHADA.	3.72	1.322	
Collaboration	Building partnership positively affects the performance of AHADA.	3.76	1.217	3.73
	Having mutual trust positively affects the performance of AHADA.	3.72	1.245	
	Accomplishing cross-cutting tasks positively affects the performance of AHADA.	3.71	1.264	

Source: Survey result, 2020

The above table shows that 72% have at least agree indicating there is harmonization, having mutual trust and accomplishing cross-cutting tasks that enhance the performance of humanitarian logistics performance. 65 % of them agreed about there is effective information flow in surveyed humanitarian logistics performance. The majority of them have at least agree indicating synchronizing multiple information flows, availability of funds, assurance of funds, adequate funds positively, having specialized staff, be an

experienced in humanitarian assistance, having sufficient and building partnership positively affects the performance of AHADA. The grand means such as 3.66 of coordination, 3.59 availability of fund, 3.62 competency and 3.73 collaboration were rated as very good as peer Anne (2006). This shows that there is a better coordination, relatively availability of fund, better competency and collaboration as between third party logistics provider and parent organization, UNHCR.Langley et al., (2005) found the same results these logistics outsourcing factors have significantly affect 3PLs logistics performance. Aldo *et al.*, (2012) investigated key success factors in logistics outsourcing and found the same common factors leading to logistics outsourcing success. Anne (2006) studied the logistic performance measurement systems from disaster relief operations and got similar results. All variables' data exhibited less variability as having sd= .875, .789, .894 and .901.

4.3.2 Responses on Performance Indicators

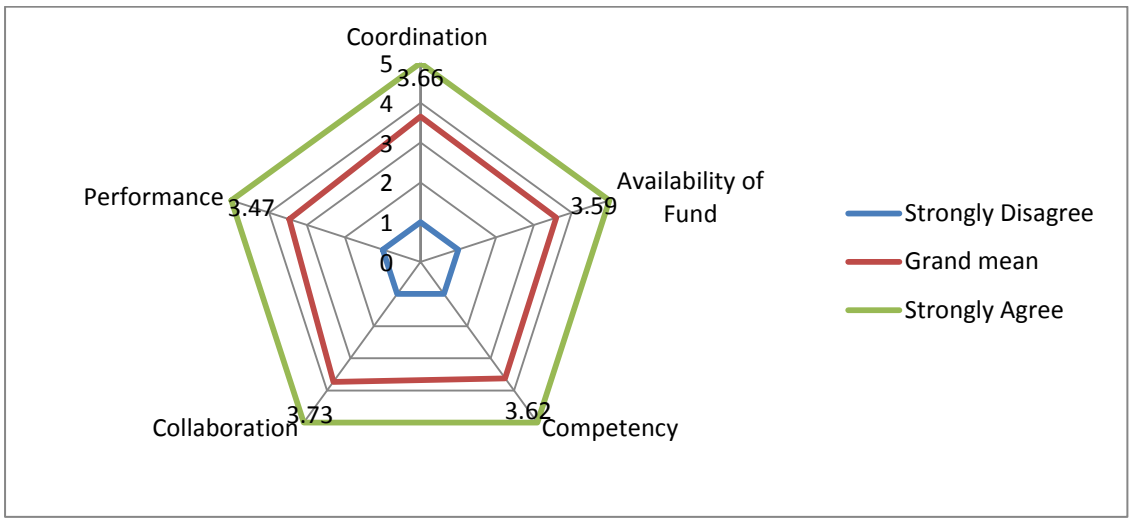
Table 4.4: Respondents Responses on Performance Indicator

Dimensions		Mean	sd	Grand mean
Cost	Good at managing all the costs that arise from all its activities in supplying and distributing	3.64	1.264	3.69
	AHADA recognizes cost management and optimization as important issues in its operations.	3.74	1.354	
Lead time	AHADA is good at managing inventory replenishment	3.53	1.312	3.474
	The right supplies are delivered by AHADA in the right quantity with all the necessary documentation for a demand requested.	3.41	1.230	
Quality	Delivered in a damage-free state with the correct configuration	3.57	1.297	3.483
	All the supplies are delivered at the right quality in order that beneficiaries are properly aided	3.4	1.338	
Risk	AHADA has better risk identification capability	3.22	1.322	3.25
	AHADA identifies logistics risks measurement tools.	3.28	1.264	

Source: Survey result, 2020

The above table shows that respondents' gave their opinion on cost and the results shows that 72.40% of them agreed that AHDA is good at managing all the costs that arise from all its activities in supplying and distributing material to where needed and 74.1 % agreed that efficient humanitarian logistics performance was observed and recognizes cost management and optimization as important issues in its operation. The grand mean was rated as very good

(3.69) with less variability having .891 sd. In addition, lead time was rated as good as having 3.47 grand mean and 65.50% have at least agree indicating the humanitarian logistics performance is evaluated as good at managing inventory replenishment and 60.30% of them indicated that right supplies are delivered by the right quantity with all the necessary documentation for a demand requested. Moreover, 66% of them agreed the supplies delivered by in a damage-free state with the correct configuration and 59% of them said all the supplies are delivered at the right quality in order that beneficiaries are properly aided humanitarian logistics performance. Further, 50% of them said there is a better risk identification capability and identifies logistics risks measurement tools. Quality and risk variables were rated as good due to the fact that they have 3.48 and 3.25 grand mean with less variability (sd= .891 and .879) respectively.



Source: Survey result, 2020

Figure 4.2: Grand Mean

The above table shows grand mean 3.66 of coordination, 3.59 availability of fund, 3.62 competency, 3.73 collaboration and 3.47. This shows that there is a better coordination, relatively availability of fund, better competency and collaboration as between third party logistics provider and parent organization.

4.4Correlation Analysis

The hypotheses discussed in the first chapter aimed to investigate the relationship between independent variables and dependent variable (logistics performance) in the surveyed company.

Table 4.5 Correlations results

		1	2	3	4	5
Coordination	Pearson Correlation	1	.592**	.760**	.749**	.821**
	Sig. (2-tailed)		.000	.000	.000	.000
Availability of Fund	Pearson Correlation	.592**	1	.720**	.722**	.793**
	Sig. (2-tailed)	.000		.000	.000	.000
Competency	Pearson Correlation	.760**	.720**	1	.799**	.894**
	Sig. (2-tailed)	.000	.000		.000	.000
Collaboration	Pearson Correlation	.749**	.722**	.799**	1	.876**
	Sig. (2-tailed)	.000	.000	.000		.000
Performance	Pearson Correlation	.821**	.793**	.894**	.876**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	58	58	58	58	58

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

Source: Survey result, 2020

Correlation analysis was applied to examine this relationship among variables. The Pearson Product-Moment Correlation Coefficient is a statistic that indicates the degree to which two variables are related to one another. The above table show that there is a positive and significant relationship between coordination (r=0.821; sig, 0.0000), availability of fund (r=0.793; sig, 0.0000), competency (r=0.894; sig, 0.0000) and collaboration (r=0.876; sig, 0.0000) and performance at Correlation is significant at the 0.01 level (2-tailed).

4.5 Linear Regression Analysis

Linear regression analysis was used to measure the statistical significance of the effect of each individual independent variable on the dependent variable through F and P value.

4.5.1 Assumptions and Diagnostic Test

Regression diagnostic test results shows that the regression assumption is met the five criteria and the results found in appendix next to data collection instrument.

4.5.2 Regression Test Result

Table 4.6 Regression results

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.952[a]	.906	.899	.400	1.802

a. Predictors: (Constant), Collaboration, Availability of Fund, Coordination, Competency
b. Dependent Variable: Performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	81.418	4	20.354	127.493	.000[b]
	Residual	8.462	53	.160		
	Total	89.879	57			

a. Dependent Variable: Performance

b. Predictors: (Constant), Collaboration, Avalilabity of Fund, Coordination, Competency

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.290	.163		1.777	.081
	Coordination	.214	.068	.220	3.158	.003
	Availability of Fund	.179	.057	.204	3.145	.003
	Competency	.348	.079	.357	4.393	.000
	Collaboration	.234	.067	.279	3.490	.001

Source: Survey result, 2020

This measurement is made by inferring the value of R^2 to explain the magnitude of the effect of the independent variable on the dependent variable. Here below depicted and explained are the linear regression of various independent variables and dependent variable. As shown in the above table, the overall bundle of determinant factors of the four independent variables were the Multiple R 0.952 indicates the overall relationship between independent and dependent variables. R2 (0.906) shows that 91% of the variation on the dependent variable is explained by the independent variables under study. The remaining 9% of the variation on the dependent variable is explained by other variables not included in this study. As the second table shows the result F= 127.49; it can be concluded that the combination of determinant factor have positive effect on 3 P's performance which is statistically significant. Thus, this study rejects the null hypothesis.

From the above multiple regression table, we can easily compare the relative contribution of each of the different variables by taking the beta value under the unstandardized coefficients. The higher the beta value, the stronger its contribution becomes. Accordingly, the study found that competency and performance (Beta=.348) makes the strongest unique contribution to explaining the dependent variable. The result revealed that, a one-unit effort increases or positive change in 3PL performance would lead to a 0.48 unit increase in the

level of competency and followed collaboration and coordination (B=.249 and .219), then finally availability of fund (B=.179). When we see the statistical significance, each variable from the above coefficients table indicates that there is there is a positive and significant effect betweencoordination (.003), availability of fund (.003), competency (.0001) and collaboration (.01) and have a statistically significant contribution to the prediction of the 3PL performance. This study has similar outcome like Ying (2002) who found third-party logistics services performance depend on collaboration, coordination funding and competency. The important 3PL services utilized various functions based on this factors (Alan et al, 2007).

4.5.3 Regression Mathematical Model

The equation of multiple regressions on this study is generally built on two sets of variables, namely dependent variable (3PL performance) and independent variables. The basic objective of using regression equation on this study is to make the researcher more effective at describing, understanding, predicting, and controlling the stated variables. The model of the study is:

$$Y=a+b_1X_1+b_2X_2+b_3X_3+b_4X_4+ \mathbf{e}$$

In the above equation,

- Y = Performance of third-party logistics provider
- X1 = Coordination
- X2 = Fund Availability
- X3 = Competency
- X4 = Collaboration
- e = Error

$$\mathbf{Yi = 0.290 + .214X_1 + .179X_2 + .348X_3 + .234X_4}$$

a is the intercept term- it gives the mean or average effect on Y of all the variables excluded from the equation, although its mechanical interpretation is the average value of Y when the stated independent variables are set equal to zero.B_1, β_2, β_3 and β_4 refer to the coefficient of their respective independent variable which measures the change in the mean value of Y, per unit change in their respective independent variables.

4.6Hypothesis Testing

Performance targets on expressive when they can be articulated quantitatively and included the process of quantifying the efficiency and effectiveness of action; the process of evaluating

performance relative to a defined goal; the process of evaluating performance in terms of explicit short-, medium-, and long-term objectives and reporting the results to management and the process of transferring the complex reality of performance into a sequence of limited symbols.

H_o– Coordination has a positive and significant effect on humanitarian logistics performance

The correlation analysis is used to see if coordination has relationship with humanitarian logistics performance of the 3PL company; and it that coordination has a significant relationship show with humanitarian logistics performance of the 3PL company (r=0.821; sig, 0.0000); and to make sure that it actually influence the humanitarian logistics performance of the 3PL company (Sig, 0.003), multiple regression analysis has been conducted. Besides, the result of the regression analysis shows that lack of coordination between AHADA 3PL and UNHCR negatively affects humanitarian logistics performance of the 3PL company; as a result, the stated null hypothesis is accepted. Or failed to reject null hypothesis .The finding agrees with results of previous researches conducted in the same area. Minear (2002) to manage information, mobilize resources and assure accountability, coordination is vital to improve performance of 3PL activities. The performance it achieved via coordination among service providing agencies is important (Sanders, and Nix, 2011). It helps to reduce duplication and often framed as securing or improving organizational efficiency (Minear, 2002).

H_o – Availability of funds has a positive and significant effect on humanitarian logistics performance

Using correlation analysis, it helps to examine if unavailability of funds has relationship with humanitarian logistics performance of the 3PL company; and it that unavailability of funds has a significant relationship show with humanitarian logistics performance of the 3PL company (r=0.793l; sig, 0.0000); and to make sure that it actually influence the humanitarian logistics performance of the 3PL company (Sig, 0.003), multiple regression analysis has been conducted. In addition, the result of the regression analysis shows that unavailability of funds between AHADA 3PL and UNHCR negatively affects humanitarian logistics performance of the 3PL company; as a result, the stated null hypothesis is accepted. Or failed to reject null hypothesis. The finding agrees with results of previous researches conducted in the same area. For example, effective synchronization and availability fund affects humanitarian logistics performance of the 3PL company (Sanders, and Nix, 2011).

H_o – Competency has a positive and significant effect on humanitarian logistics performance

The correlation analysis is applied to investigate if competency has relationship with humanitarian logistics performance of the 3PL company; and it that competency has a significant relationship show with humanitarian logistics performance of the 3PL company (r=0.894; sig, 0.0000); and to make sure that it actually influence the humanitarian logistics performance of the 3PL company (Sig, 0.0001), multiple regression analysis has been conducted. Besides, the result of the regression analysis shows that lack of competency between AHADA 3PL and UNHCR negatively affects humanitarian logistics performance of the 3PL company; as a result, the stated null hypothesis is accepted. Or failed to reject null hypothesis.T. The finding agrees with results of previous researches conducted in the same area. The decision to contract-out logistics can also be driven by resource and capability (competency) considerations (Bolumole, 2001). Ina addition, Sanders, and Nix (2011) found that competency is a source of sustainable competitive advantage that Humanitarian Organizations can have. Kovacs and Karen (2006) claim that in highlighting certain levels of specialization in the provision of services, specialisation levels of the staff such as logistics professionals, health among others can be available in a humanitarian organization

H_o – Collaboration has a positive and significant effect on humanitarian logistics performance

Finally, using the same correlation analysis, it helps to examine if collaboration of funds has relationship with humanitarian logistics performance of the 3PL company; and it that collaboration has a significant relationship show with humanitarian logistics performance of the 3PL company (r=0.876; sig, 0.0000); and to make sure that it actually influence the humanitarian logistics performance of the 3PL company (Sig, 0.001), multiple regression analysis has been conducted. In addition, the result of the regression analysis shows that lack collaboration between AHADA 3PL and UNHCR negatively affects humanitarian logistics performance of the 3PL company; as a result, the stated null hypothesis is accepted. Or failed to reject null hypothesis. T. Similarly, Ross (2003) found the same result as lack collaboration reduces the total benefit of the logistics function and a value chain is based on intensive information exchange through business documents or, more formally, data objects. In general, it is based on the degree of collaboration and the number of participants, supply chains could be classified into three categories: partner collaboration, value chains, and supply networks (Poirier, 2002).

Table 4.7 Summary of Hypotheses Tested

Hypothesis	Sig.	Status
H_o – Coordination has a positive and significant effect on humanitarian logistics performance	.003	Accepted
H_o – Availability of funds A has a positive and significant effect on humanitarian logistics performance	.003	Accepted
H_o – Competency has a positive and significant effect on humanitarian logistics performance	.000	Accepted
H_o – Collaboration has a positive and significant effect on humanitarian logistics performance	.001	Accepted

Source: Survey result, 2020

4.7Performance Gap Analysis

The humanitarian logistics performance was measured using performance gap analysis.

Based on the following hypotheses are tested based on the data collected by the researcher.

- Hypothsis-1 - H0: Humanitarian warehouse performance is linked with 3PL service provider performance at Dolo ado humanitarian operation.
- Hypothis-2 - H0: The entire fuel & inventory management is practically implemented by 3PL service provider at Dolo ado humanitarian operation.
- Hypothsis-3 - H0: Humanitarian fleet management demand is effectively managed by 3PL service provider at Dolo ado humanitarian operation.
- Hypothsis-4 - H0: Beneficiaries are satisfied with 3PL service provider to carry out humanitarian supply distribution at Dolo ado humanitarian operation.
- Hypothsis-5 - H0: Maintenance management and its system of 3PL service provider support humanitarian activities at Dolo ado humanitarian operation.

Before analyzing the performance gap between expectation and perception, the mean results of each function have been reviewed. The below performance evaluation of mean results have been found.

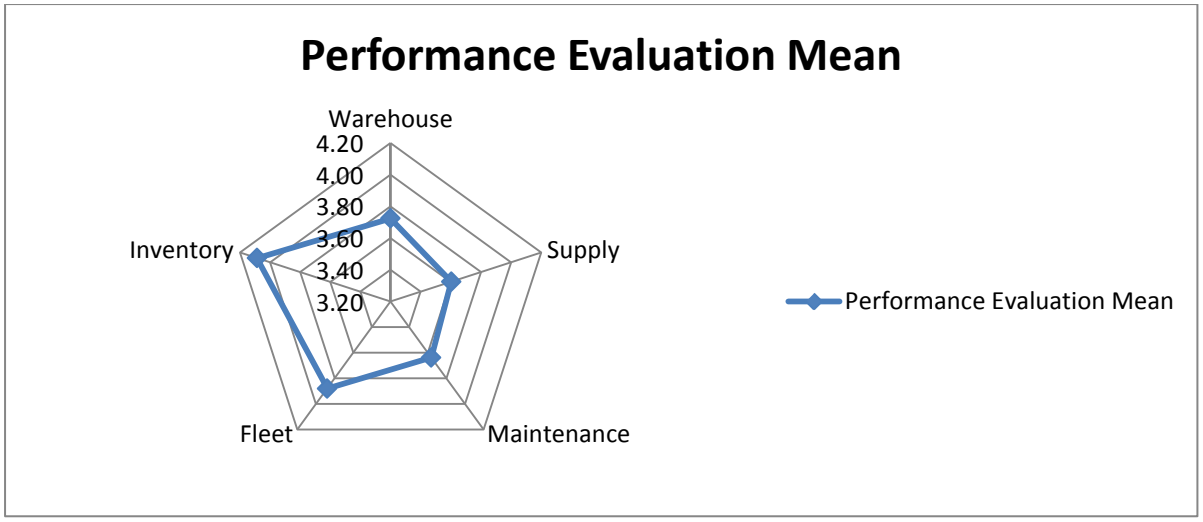


Figure 4.3 Performance Evaluation Mean Results

In a review of 3PL function performance, all of these logistics metrics were not the same; for example, warehouse was measured as stated in chapter two. The functions have identical and different metrics; for example, warehousing by speed (responsiveness), efficiency, effectiveness, flexibility and cost and inventory management (including fuel management) using reliability, responsiveness, flexibility, cost and accuracy. Additionally, the selection of these metrics was based on the performance of 3PL such as on-time delivery, total quality, coordination, competency and collaboration included, among others. Under the 3PL logistics functions, the highest mean is found on inventory. It indicates that there is low inventory carrying costs, days of inventory on hand, and obsolete inventory costs provide a perspective on a firm's costs of inventory, its commitment to having inventory available for customers and how well a firm plans its inventory.

Accordingly, this study used Chi square tests to analyze and test the above six Hypotheses. Since, Chi-square test provides a way of judging against a set of observed response frequencies with a set of Expected response frequencies (Amir, 2008). This section presents the analysis and results of this paper. Chi square -goodness of- fit is used to support or reject the null hypothesis.

Decision Rule

The decision used under the test of chi square is either to reject or to accept the null hypothesis. If the computed value of Chi-square is greater than the Chi-square table value, there is evidence to reject the null hypothesis this means the alternative hypothesis will be accepted. However, using SPSS, significance level constantly determined a priori as a rule set

at the 0.05 level. Then the decision will be the following: If p<0.05 then reject the null hypothesis and accept the alternate ***and If p > 0.05 then accept the null hypothesis. Therefore, the test result is indicated in the following tables***.

Table 4.8 Chi Square Test Results

Chi-Square Tests	Asymp. Sig. (2-sided)
Expectation and Perception gap of Warehouse	.297
Expectation and Perception gap of Inventory & fuel management.	.086
Expectation and Perception gap of Fleet	.187
Expectation and Perception gap of Supply Distribution	.562
Expectation and Perception gap of Maintenance	.528

Source: Survey result, 2020

Based on the decision rule, ***If p > 0.05 then accept the null hypothesis***, and reject the alternate). Since .297 is greater than 0.05 therefore, the null hypothesis (Humanitarian warehouse performance is linked with 3PL service provider performance) is not rejected and the alternative hypothesis is not accepted with 5% significance. Hence, the result revealed that Humanitarian warehouse performance is linked with 3PL service provider performance.

Hypothis-2 - H0: H0: The entire fuel & inventory management is practically implemented by 3PL service provider at Dolo ado humanitarian operation And H1: The entire inventory management (including fuel management) is not practically implemented by 3PL service provider at Dolo ado humanitarian operation. Based on the decision rule, ***If p > 0.05 then accept the null hypothesis***, and reject the alternate). Since .086 is greater than 0.05 therefore, the null hypothesis (The entire inventory management is practically implemented by 3PL service provider at dolo humanitarian operation) is not rejected and the alternative hypothesis is not accepted with 5% significance. Hence, the result revealed that the entire inventory management is practically implemented by 3PL service provider at Dolo ado humanitarian operation.

Using the decision rule, the null hypothesis is not rejected, and the alternative hypothesis is not accepted with 5% significance (.187 greater than .05). Hence, the result revealed that Humanitarian fleet management demand is effectively managed by 3PL service provider at Dolo ado humanitarian operation.

Using the decision rule, the null hypothesis is not rejected, and the alternative hypothesis is not accepted with 5% significance (.562 greater than .05). Hence, the result revealed that beneficiaries are satisfied with 3PL service provider to carry out humanitarian supply distribution at Dolo ado humanitarian operation.

Using the decision rule, the null hypothesis is not rejected, and the alternative hypothesis is not accepted with 5% significance (.528 greater than .05). Hence, the result revealed that maintenance management and its system of 3PL service provider support humanitarian activities at Dolo ado humanitarian operation.

CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of the findings of the study. It has elaborated the summary and major findings from the analysis and has produced the presentation in detail. The researcher suggests the possible recommendations and conclusions that has summarized and concluded the research study.

5.1 Summary of Major Findings

- The overall attempt of this thesis was to find out the determinants factors that affect humanitarian logistics in the case of AHADA at Dollo Ado humanitarian operation and to assess the logistics performance of AHADA (in terms of warehouse, inventory, fleet, maintenance and facility management) as third party logistics in the UNHCR's humanitarian operation at Dollo Ado. Using explanatory and descriptive research design, the study found that there is a positive and significant relationship between coordination (.821), availability of fund (.793), competency (.894) and collaboration (.876) and humanitarian logistics performance at significant at the 0.01 level (2-tailed) using correlation analysis. In addition, it was found that there is a positive and significant effect between coordination (.003), availability of fund (.003), competency (.0001) and collaboration (.01) and have a statistically significant contribution to the prediction of the humanitarianly logistics performance. The study arrived at the decision that warehouse performance, inventory management, fleet management, supply distribution and maintenance management are performed best by evaluating the logistics performance of third logistics provider using Chi square tests of the performance gap analysis; as result of outsourcing humanitarian logistics operation maintained efficiency and effectiveness because of logistics outsourcing.

5.2 Conclusion

Third Party Logistics providers are service providers who deal with logistics solutions to ensure effective and efficient performance of humanitarian logistics management. Humanitarian logistics performance is viewed by various factors including to gain access best practices, to improve service quality, to control logistics cost, to increase speed, to properly manage its resources, to spread its risks and to focus on issues that are very much crucial to

their existence and future growth. There is a need to well-coordinated their actives within arranged funds, competency and collaboration to maximize their performance. Accordingly, bondage of warehouse enactment, inventory management, fleet, supply distribution and maintenance management are vital to support the humanitarian activities effectively and efficiently. The study also concluded that coordination, availability of fund, competency and collaboration had a significant positive effect on the humanitarian logistics performance.

5.3 Recommendation

Offering a rapid and appropriate response in humanitarian operation require complex ***coordination, availability of fund, organizational competence and collaboration*** among the UNHCR and third-party logistic provider. Furthermore, Performance of 3PL provider is highly linked with proper identification and implementation of determinants of humanitarian logistics performance. Hence both companies must maintain close control over determinant factor that could improve overall logistic performance of Dollo operation.

This study also recommends that it may be useful for both organizations to examine existing humanitarian logistic operation practice to ensure minimization of stock discrepancy, to follow consistent issuance procedure, early conclusion of PPA (project partnership agreement) and conduct as per agreed standard operating procedure.

Furthermore, this study recommends that other huge humanitarian actors should take this as a benchmark and enhance their understanding about determinant factor and logistic performance and consider outsourcing as part of their logistics business for improving their logistic practice.

5.4 Areas for Further Research

Similar study should be conducted using different variables to establish which other variables affects the performance of 3PL services providers like communication, information sharing, information flow, and similar variables. In the same way, the data was collected from single sector of humanitarian logistics practice. There are various sectors such as service, manufacturing and agriculture such as 3pl services providers in farming, exporting, and construction and hotel industries. This study recommends a similar research to be conducted from multiple 3 PL service providers and partners' informants' groups to come up with a variety of outcomes.

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Annex

Annex I - Questionnaire

Determinants of Humanitarian Logistics: The Case of Africa Humanitarian Aid and Development Agency at Dollo Ado).

Greetings, Dear

I am GirmaDadi, a post graduate student of Master of Logistics and Supply Chain management, School of Commerce, Addis Ababa University. I am carrying out a study on Determinants of Humanitarian Logistics Performance: The Case of Africa Humanitarian Aid and Development Agency at Dollo Ado).

It will be of great value if you can share your wealth of knowledge by completing the attached questionnaire. Your answers will be handled with highest anonymity and confidentiality; this will be achieved by no indication of names.

Please kindly return the completed questionnaire to me. Your participation will be highly appreciated.

Yours Sincerely

GirmaDadi
Tel :0911475890

Part A: Personal Profile

Instruction – please tick appropriate answer you choose.

Age (in years)	Young adults (ages 18-35 years)	[ ]
	Middle-aged adults (ages 36-55 years)	[ ]
	Older adults (aged older than 55 years)	[ ]
Sex:	Male	[ ]
Education level:	Female	[ ]
	Diploma and below	[ ]
	First Degree	[ ]
	Master and above	[ ]
Your work experience in humanitarian 3PL service provider /UNHCR	Below 5 years	[ ]
	6 to 10 years	[ ]
	11 to 15 years	[ ]
	Above 16 years	[ ]
Which management level do	Low	[ ]
	Medium	[ ]
	Top	[ ]

Section B: Factors affecting Third party logistics performance

6) Please indicate the extent to which you agree or disagree with each statement and tick (√) in a box to the correspondent number. Note: - 5= Strongly Agree, 4= Agree, 3= Disagree, 2= Strongly Disagree, 1= Neutral

Variables	Dimensions	1	2	3	4	5
Coordination	Logistics activities are well harmonized.					
	Logistics information flow timely between UNHCR and AHADA					
	Multiple information flows properly between UNHCR and AHADA					
Availability of funds	AHADA waits for long before funding is received					
	UNHCR give assurance of funding all the time					
	AHADA gets enough fund to meet all the planned programs					
Competency	AHADA has specialized levels of staff					
	AHADA is experienced in humanitarian assistance					
	There is personnel substitution at Logistics coordination level.					
Collaboration	UNHCR and AHADA have a Partnership building pre-conditions					
	UNHCR and AHADA have trust building level					
	UNHCR and AHADA high rate of specialization& cross-cutting tasks					

7) Please indicate the extent to which the cost, lead time, quality and risk elements below affect the performance of 3PL provider. Please record your answer by ticking in the spaces provided, by the scale indicator (1=not at all, 2=small extent, 3=moderate, 4=large extent, 5=very large extent)

Variables	Dimensions	1	2	3	4	5
Cost	Transactional cost					
	Agency/administration fees					
	Handling and processing fees					
Lead time	Inventory replenishment					
	Delivery reliability					
	Delay in logistics service delivery					
Quality	Consistency					
	Willingness to help					
	Complaint handling					
Risk	Risk identification capability					
	Ability to risk measurement					
	Usually conducting risk assessment					

8) With regard to humanitarian logistics outsourcing, rate the extent to warehousing and inventory control in humanitarian third party logistics. Use the scale 1 – 5 where 1 = Very small extent; and 5 = Very great extent

Africa Humanitarian Aid and Development Agency – AHADA

3PL Logistics Dimensions	Performance Dimensions	1	2	3	4	5
Warehousing	Speed (Responsiveness)					
	Efficiency					
	Effectiveness					
	Flexibility					
	Cost					
Inventory management including Fuel management	Reliability					
	Responsiveness					
	Flexibility					
	Cost					
	Inventory accuracy					
	Inventory turnover					
	Lead time					

	Consumption					
	Cost					
	Quality					
	Economy and Efficiency					
Fleet management	Service Delivery					
	Cost					
	Quality					
	Fair Access					
	Flexibility					
	Speed (Responsiveness)					
	Damage and loss claim					
Supply distribution	Cost					
	Quality					
	Delivery					
	Flexibility					
Maintenance management	Quality and speed of Work Execution					
	Reliability					
	Work Scheduling					
	Responsiveness of Planning					
	Maintenance Costs					
	Safety and compliance					
	Preventive maintenance compliance					
	Work order maintenance					
	Failure rate					

Thank you for your cooperation!

Annex II - Interview Checklist

I am Girma Dadi, a postgraduate study of Addis Ababa university department of logistics and supply chain Management. I am conducting a study on outsourcing logistics activities with five interrelated questions.

Can I counting my questions? Thank you.

1. How would you describe AHADA's activities and service offering(s)?
   ……
   ……
   ……
2. What are the most important attributes of AHADA service offering?
   ……
   ……
   ……
3. For each individual attribute, what are the consequences or benefits to the beneficiaries associated with that attribute?
   ……
   ……
   ……
4. Are there any negative consequences for beneficiaries associated with individual attributes? If so, what are they? *
   ……
   ……
   ……
5. Please suggest any other AHADA's logistics activities for efficient and effective aid distribution

Appendix Table III-1 Logistics Performance Dimension

Dimensions	Performance Indicator
Warehousing	Speed (Responsiveness)
	Efficiency
	Effectiveness
	Flexibility
	Cost
Inventory management (including fuel management)	Reliability
	Responsiveness
	Flexibility
	Cost
	Accuracy
Fleet management	Service Delivery
	Cost
	Fair Access
	Flexibility
	Speed (Responsiveness)
Supply distribution	Cost
	Quality
	Delivery
	Flexibility
Maintenance management	Quality Work Execution
	Work Order Completion
	Responsiveness of Planning
	Maintenance Costs
	Safety and compliance
	Preventive maintenance compliance
Facility management	Quality
	Reliability
	Responsiveness of Planning

Source: warehouse and inventory including fuel (Gilley, 2000) and (Perrin, 2002); fleet management (Irina and Mirela, 2014) and for others (Sankaran and Charman (2000)

Appendix Table III-2 Independent Variables

Dimensions		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	Grand mean
Coordination	Harmonized between UNHCR and AHADA positively affects the performance of AHADA.	10%	6	9%	5	9%	5	43%	25	29%	17	3.72	3.66
	Effective information flow positively affects the performance of AHADA.	12%	7	7%	4	16%	9	36%	21	29%	17	3.64	
	Synchronizing multiple information flows positively affects the performance of AHADA.	9%	5	10%	6	21%	12	33%	19	28%	16	3.6	
Availability of Fund	Availability of funds positively affects the performance of AHADA.	12%	7	9%	5	12%	7	41%	24	26%	15	3.6	3.59
	Assurance of funds positively affects the performance of AHADA.	12%	7	7%	4	12%	7	50%	29	19%	11	3.57	
	Adequate funds positively affect the performance of AHADA.	10%	6	10%	6	14%	8	40%	23	26%	15	3.6	
Competency	Having specialized staff positively affects the performance of AHADA.	12%	7	16%	9	10%	6	38%	22	24%	14	3.47	3.62
	Be an experienced in humanitarian assistance positively affects the performance of AHADA.	7%	4	14%	8	10%	6	43%	25	26%	15	3.67	
	Having sufficient personnel positively affects the performance of AHADA.	10%	6	10%	6	10%	6	35%	20	35%	20	3.72	
Collaboration	Building partnership positively affects the performance of AHADA.	7%	4	12%	7	9%	5	43%	25	29%	17	3.76	3.73
	Having mutual trust positively affects the performance of AHADA.	10%	6	9%	5	9%	5	43%	25	29%	17	3.72	
	Accomplishing cross-cutting tasks positively affects the performance of AHADA.	9%	5	12%	7	9%	5	41%	24	29%	17	3.71	

Appendix Table III-3 Dependent Variables

- Performance Indicators

Dimensions		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	Grand mean
Cost	Good at managing all the costs that arise from all its activities in supplying and distributing	10%	6	10%	6	7%	4	50%	29	22%	13	3.64	3.69
	AHADA recognizes cost management and optimization as important issues in its operations.	10%	6	9%	5	7%	4	45%	26	29%	17	3.74	
Lead time	AHADA is good at managing inventory replenishment	10%	6	19%	11	5%	3	38%	22	28%	16	3.53	3.474
	The right supplies are delivered by AHADA in the right quantity with all the necessary documentation for a demand requested.	9%	5	24%	14	7%	4	38%	22	22%	13	3.41	
Quality	Delivered in a damage-free state with the correct configuration	5%	3	22%	13	7%	4	41%	24	24%	14	3.57	3.483
	All the supplies are delivered at the right quality in order that beneficiaries are properly aided	7%	4	28%	16	7%	4	36%	21	22%	13	3.4	
Risk	AHADA has better risk identification capability	7%	4	36%	21	7%	4	28%	16	22%	13	3.22	3.25
	AHADA identifies logistics risks measurement tools.	5%	3	36%	21	9%	5	26%	15	24%	14	3.28	

Source: Survey result, 2020

Appendix Table III- 4 Multiple Regression Diagnostic Tests

1) Test for average value of the error term is zero (E (ut) = 0); the first assumption required is that the average value of the errors is zero. Therefore, since the constant term (i.e. α) was included in the regression equation, the average value of the error term in this study is expected to be zero.

2) Normality Test

Table 4.6 Normality Test

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Coordination	-.815	.399	-.477	.325
Availability of Fund	-.846	.399	-.531	.325
Competency	-.819	.399	-.572	.325
Collaboration	-.804	.399	-.350	.325
Performance	-.802	.399	-.089	.325
Valid N (listwise)	222			

Source: Survey result, 2020

The above table shows the descriptive statistic of Kurtosis and Skewness statics calculation and demonstrates that the distribution is normal because Kurtosis and Skewness are between -2 and +2 interval ranges. (Schoenbach, 2004).

3) Test for multicollinearity

Multicollinearity refers to a situation in which there is exact (or nearly exact) linear relation among two or more of the input variables (Uma, 2003).

Table 4.7 Multicollinearity Test

	Tolerance	VIF
Coordination	.366	2.733
Availability of fund	.422	2.371
Competency	.270	3.710
Collaboration	.278	3.601

Source: Survey result, 2020

Practical experience indicates that if any of the VIF results exceed 5 or 10, it is an indication that the associated regression coefficients are poorly estimated because of multicollinearity (Uma, 2003). According to the result obtained from the analysis, there is no strong multi collinearity and degree of association between variables. The above table shows that the VIF

value of four factors was found less than 5 or 10. It can be concluded that no collinearity was observed on this data.

4) Test for Autocorrelation

Assumption that is made of the multiple linear regression's disturbance terms is that the covariance between the error terms over time (or cross-sectionally, for that type of data) is zero.

Table 4.8 Autocorrelation Test: Durbin Watson

Variables	DW test static result
All variables	1.802

Source: Survey result, 2020

To test the presence of autocorrelation, the popular Durbin-Watson Test was employed in this study. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are "auto correlated" or that they are "serially correlated". A test of this assumption is therefore required.