



EFFECT OF HUMANITARIAN SUPPLY CHAIN  
COLLABORATION PRACTICES ON PERFORMANCE OF  
HUMANITARIAN ORGANIZATIONS: THE CASE OF  
ERITREAN REFUGEE CRISES IN ETHIOPIA

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**Addis Ababa University**  
**College of Businesses and Economics**  
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## DECLARATION

I, **Asmerom Weldezgina Asersu**, declare that this thesis in the title “**Effect of Humanitarian Supply Chain Collaboration Practices on Performance of Humanitarian Organizations: The Case of Eritrean Refugee Crises in Ethiopia**” was conducted by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and this work has not been submitted for any other degree or professional qualification except as specified for the partial fulfillment of the requirements for the Degree of Masters of Art in Logistics and Supply Chain Management at Addis Ababa University, School of commerce. I have duly acknowledged all the sources and references from which the ideas and extracts have been taken.

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## **CERTIFICATION**

*This is to certify that the thesis in title “**Effect of Humanitarian Supply Chain Collaboration Practices on Performance of Humanitarian Organizations: The Case of Eritrean Refugee Crises in Ethiopia**” that is being submitted by **Asmerom Weldezgina Asersu** for the partial fulfillment of the requirements for the award of the degree of Masters of Art in Logistics and Supply Chain Management at Addis Ababa University, School of commerce is a record of bona fide work carried out by him under my guidance and supervision. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.*

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*Signature:* \_\_\_\_\_

*Date:* \_\_\_\_\_

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The Researcher

## ABSTRACT

Humanitarian supply chain collaborations are a vital cluster of activities during emergencies due to natural or man-made disasters to prevent loss of lives and property and alleviate suffering in unstable environments. However, the subject is not well studied compared to the business collaborations in profit-making organizations where profit is their main reason for existence. The main objective of this study was to assess the practices, challenges, drivers, and performances of selected non-profit making International and local Non-Governmental organizations of the Eritrean refugee crises in Ethiopia and try to contribute to the research family in the field. The main research designs applied for the research were descriptive and explanatory types of research design. The data was collected through a questionnaire and distributed to 100 selected staff and partners from Addis Ababa the country office staffs, and Tigray region field offices in Mekelle, sub-office Shire, and Sheraro zone staffs where there hosts a lot of Eritrean refugees which call upon emergency activities from international Non-Governmental organizations and local Non-Governmental organizations. Out of the 100 distributed questionnaires only 80 were used for the analysis as the remaining 20 were either rejected for incompleteness or not returned at all. The data collected were analyzed through the computer software SPSS and presented using descriptive texts, frequency tables, cross-tabulations, percentiles, means, standard deviations, correlation, and regressions. The assessment of the Humanitarian supply chain collaboration practices revealed that Non-Governmental organizations assess mutual trust well by building trustworthiness among local and international Non-Governmental organizations in the affected area and the reciprocal commitment and relationship-specific investment activity is also managed well. The resource complementarity, strategic compatibility, and long-term orientation of resource sharing in multiple events are also at its well level though there is some reservation indicated in the responses. Operational compatibility, relational, and coordination capability in delivering efficient relief were found to be satisfactory with some remarks. Searching for to get reduce costs, eliminate duplications, attracting more donors from the drivers and poor communication, power imbalance, absence of mutuality from challenges are mentioned to be the main factors affecting the performances of the organization. In general, the collaboration between international Non-Governmental organizations and local Non-Governmental organizations in the Eritrean refugee crises in Ethiopia is operating well in the mentioned areas and the activities are found to be fairly properly managed. However, the challenges and drivers should be seriously considered and need to be dealt with the organizations for those challenges and drivers in the control of the organizations while discussion with partners and the responsible government bodies are required for those beyond control. Flexibility at joint planning and forecasting is crucial and hence a contingency plan needs to be applied by the organization as flexibility is perceived to be not performing well. As a future direction for researchers interested in this field, it is good to consider more organizations especially on the dyadic and network relationships that affect their performances in different regions.

*Key words: humanitarian supply chain Collaboration, International and Local Non-Governmental organizations, challenge, drivers, performance, and practice.*

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# CHAPTER One: INTRODUCTION

The purpose of this thesis is to identify and examine the humanitarian supply chain collaboration practices, challenges facing, and key drivers that the Eritrean refugee crises in Ethiopia face in providing its humanitarian activities to the needy and the performance of the humanitarian supply chain collaboration activities. While providing humanitarian activities there are so many challenges and drivers that are specifically related to the humanitarian supply chain collaboration aspect of the operation. These challenges and drivers, unless overcome, may hinder humanitarian performance. In this introductory chapter of the thesis the reader will have a clear understanding of the research objective, the background of the study, research problems, research questions, significance of the study, organization of the study, and limitations of the study.

## 1.1 Background of the Study

Nowadays, the global population of forcibly displaced increased by 2.3 million people in 2018. By the end of the year, almost 70.8 million individuals were forcibly displaced worldwide as a result of persecution, conflict, violence, or human rights violations. As a result, the world's forcibly displaced population remained yet again at a record high. The frequency and impact of disasters have increased almost threefold in the last four decades (UNHCR, 2018; Thomas and López, 2015).

Commercial supply chains are driven by relatively predictable demand, reliable data, measurable outcomes, and adequate capacities (Beamon, 2004). Humanitarian demand on the other hand is unpredictable, very time-sensitive, and often constrained by supply and lack experience regarding relief work thus sidelining any profit goals (Tomasini and Van Wassenhove, 2009). Moreover, funding is typically available over a short period (Balland and Sobhi, 2013), while the outcomes of the relief actions are hard to quantify and evaluate accurately (Tomasini and Van Wassenhove, 2009; Nikbakhsh and Farahani, 2011).

Failure by the humanitarian system to deliver aid effectively has led to a huge loss of lives (Balland & Sobi, 2013). Schulz and Blecken (2010) highlighted the importance of collaborative collaboration between the key humanitarian actors to exchange valuable resources. Porter (1998) stated that collaboration has been described as a silver bullet that

allows organizations to achieve better value, enhance the supply chain performance, and improve the resilience and recovery of affected communities (Chandes and Pache, 2010).

Recently, the collaboration between INGOs and LNGOs has received great attention. This is because INGOs have access to international resources, but they are not able to act freely in the affected regions without the assistance of LNGOs (Crowther, 2001; Svoboda and Pantuliano, 2015). LNGOs, on the other hand, have a strong knowledge relevant to their country's rules, refugees' geographical distributions and needs, but they suffer from scarcity in resources and expertise (Libal and Harding, 2011; Charles et al., 2014; Svoboda and Pantuliano, 2015; ICRC, 2017). Thus, collaborative collaboration and coordination within and between organizations can lead to improved efficiency and effectiveness in resource allocation, and benefits that cannot be achieved by individual organizations. These collaborations often entail significant challenges and drivers, such as lack of mutuality, poor communication, and resource uncertainty (Kovacs and Spens, 2010 Balcik et al., 2010).

Since the collaborative partnership frameworks deep-rooted within the commercial supply chain have been transplanted into the humanitarian sector without ensuring their suitability and with an inadequate examination of their applicability and this area attracted the attention of both academics and practitioners (Day *et al.*, 2012). Thus, this study focuses on identifying the drivers and challenges that impact collaboration between INGOs and LNGOs and practices to attain the desired goals of collaboration namely, trust, commitment, specific investment, long-term orientation, inter-organizational fit and relationship management capability and revealed that all these approaches have a positive and significant effect of collaboration performance between INGOs and LNGOs. Generally, this study fills the gap in horizontal collaboration in the context of the humanitarian aid supply chain (as aid suppliers and as aid distributors).

## **1.2 Statement of The Problem**

Eritrea remained the ninth largest country of origin with 507,300 refugees at the end of 2018, an increase from the end of 2017 when this population stood at 486,200. Most Eritrean

refugees (57 percent) were hosted by Ethiopia (174,000) and Sudan (114,500), but many also found protection farther away, such as in Germany (55,300), Switzerland (34,100), Sweden (27,700), Norway (15,200), the Netherlands (14,900), Israel (14,500) and the United Kingdom of Great Britain and Northern Ireland (United Kingdom) (13,000) (UNHCR, 2018).

Following the Joint Declaration of Peace and Friendship, signed on 9 July 2018 by the governments of Ethiopia and Eritrea, two border crossing points were reopened on 11 September 2018 the Ethiopian new year. The reopening has resulted in a significant increase in the number of new arrivals from Eritrea, with an average daily rate of arrivals increasing from 53 to approximately 390 individuals. Between 12 September and 02 October 2018, a total of 6,779 refugees were registered at the Endabaguna reception center with a further 2,725 others at the border points awaiting relocation to Endabaguna. Women and children constitute approximately 90 percent of the new arrivals, in contrast with the current population profile of the Eritrean camps in Tigray, where young men were the majority.

The changing profile is attributed to the reopening of border crossing points, which has facilitated easy transit and safe travel for women and children. In addition to the standard reasons for leaving Eritrea such as involuntary open-ended military conscription and human rights violations, family reunification is cited as an additional motive for movement by 83 percent of the newly registered. To enhance the response to the Eritrean crisis, the international community was asked to intervene and INGOs became responsible for filling the gap and supporting the limited local capacity (UNHCR, 2018).

The massive influx of refugees has led to a nearly 0.6 percent increase in population growth, which has exacerbated more challenges for Ethiopia alongside the existing ones and beyond its capacity in order to provide the affected people with the necessary services. The challenges experienced by refugees are like those experienced by the urban poor in host cities. These include water resources, healthcare, education, insecure housing, limited access to state and community resources, and high levels of informal employment. However, refugees may be further disadvantaged by the experience of displacement. Refugees mostly live in camps that are separated from the social and economic life of host communities and are mostly dependent on aid, which is the main source of livelihood for them. Furthermore, around 48 percent of refugees have specific needs that require extra aid such as a disability or

legal protection, 55 percent of refugees still must receive compulsory education, while around 48 percent of refugees compete for jobs (UNHCR, 2018).

Moreover, the challenges faced by urban refugees are the limited livelihood and self-reliance opportunities, leading to a high level of dependency, few prospects for local integration, high level of undocumented movements to urban areas leading to protection risks, the minimal support to out of camp policy leading to negative coping mechanisms, the increasing cost of living forcing refugees to marginal parts of the city away from service providers, and the limited funds for direct cash assistance to vulnerable refugees within the urban assistance program (UNHCR, 2018).

UNHCR works closely with the Government's Administration for Refugee and Returnee Affairs (ARRA) to coordinate and provide protection and assistance to refugees and asylum seekers in need of international protection in Ethiopia. UNHCR and ARRA collaborate on several fronts, including but not limited to, camp management, urban refugees, registration of refugees, and provision of necessities.

The government has also prepared a draft implementation plan in collaboration with UNHCR, line ministries, federal agencies, and donors based in Ethiopia. The declaration calls upon UNHCR to develop and initiate a Comprehensive Refugee Response Framework (CRRF) in situations involving large movements of refugees, in coordination with national and local authorities (UNHCR, 2018). Currently, a wide range of projects related to health, education, violence, early childhood care, and so forth are supported by local and international partners.

Over the last decade, humanitarian supply chains have become complex as different actors, processes, information, and decisions have to be mixed to serve the needs of the victims affected by a disaster (Blecken, 2010). Humanitarian supply chains are charged to ensure efficient and cost-effective flow and storage of goods and materials to alleviate the suffering of vulnerable people in unstable environments as well as to respond immediately after the disaster. However, the speed of response to the disaster, and the number of lives saved are what determines the success or failure of the humanitarian supply chains (Yu *et al.*, 2015).

Attempting to manage the complexity of supply chains in an unsystematic, piecemeal and non-strategic manner can result in sub optimal outcomes, waste of resources and loss of lives thus the effective planning of emergency, the management of supply chains in times of crisis is needed in reducing complexities in the supply chain to address and implement better responses (Tomasini & Wassenhove, 2009). The requirement to improve the delivery of humanitarian aid has recently received increased attention due to the perceived failure of aid delivery systems following significant crises (Thomas & Kopczak, 2005).

Collaboration is a silver bullet that can enhance the supply chain performance and improve the resilience and recovery of affected communities (Chandes & Pache, 2010). Van Brabant (1999) suggests that similar standards of quality, cost-effective use of resources, rational allocation of tasks, and working towards agreed priorities are all characteristics that promote collaboration between international and local NGOs. Gazley and Brudney (2007) suggest that collaboration can yield several benefits such as economic efficiencies, greater service quality, organizational learning, access to new skills, diffusion of risk, improved public accountability, ability to buffer external uncertainties, and conflict avoidance. The significant amount of uncertainty such as the number of beneficiaries, availability of supply, conditions of supply networks, availability of human resources, etc., faced by international and local NGOs when responding to disasters (Thévenaz and Resodihardjo, 2010).

In contrast, collaboration through joint plans could help humanitarian organizations to efficiently use the available resources, or collaboration through joint procurement of resources from abroad could lead to higher negotiation power and lower costs which eventually could decrease the level of competition and improve service to beneficiaries. For successful partnerships among humanitarian supply chain collaboration, organizations need to know more about managing the objectives of partnerships, flexibility, communication, power, trust, commitment, as well as relational specific investment primary focus on output performance measures (Beamon, 2004).

Considering the existing challenges and drivers of international and local NGOs in relation with humanitarian supply chain collaboration, limited researches in the humanitarian supply chain collaboration, increase in collaboration and impact of the disasters captivate the researcher to study the practices, challenges, drivers and performance of humanitarian context

regarding supply chain collaboration on Eritrean refugee crises in Ethiopia. Therefore, these are the basic areas and seasons for conducted the proposed study.

### **1.3 Research Objective**

#### **1.3.1 General objective:**

The general objective of the study is to evaluate the practices, challenges, drivers and performances of humanitarian supply chain collaboration of the Eritrean refugee crises in Ethiopia.

#### **1.3.2 Specific Objectives:**

Based on the general objective of the study above, specific objectives of the study are:

- To examine the practices of humanitarian supply chain collaboration of local and international Non-Governmental Organizations
- To identify the potential challenges of local and international Non-Governmental Organizations humanitarian supply chain collaboration practices
- To identify the key drivers of local and international Non-Governmental Organizations humanitarian supply chain collaboration practices
- To assess the effectiveness of local and international Non-Governmental Organizations humanitarian supply chain collaboration

### **1.4 Research Questions**

The study endeavors to get meaningful responses to the following research questions:

- How local and international Non-Governmental Organizations are practicing humanitarian supply chain collaboration in Ethiopia?
- What are the potential challenges of humanitarian supply chain collaboration for local and international Non-Governmental Organizations in Ethiopia?
- What are the key drivers of humanitarian supply chain collaboration for local and international Non-Governmental Organizations in Ethiopia?
- How effective is the practice of local and international Non-Governmental Organizations humanitarian supply chain collaboration in the Eritrean refugee crisis management in Ethiopia?

## **1.5 Scope of The Study**

This study is limited to the Humanitarian supply chain collaboration practices, challenges, drivers, and performance of the Eritrean refugee crises in Ethiopia. The organizations have a head office in Addis Ababa and have been working in five Regional states, i.e., Tigray and Afar (hosting Eritreans), Gambella (South Sudanese), Benishangul Gumuz (hosting mostly Sudanese, but also South Sudanese), and Somali (Somalis). Due to the time constraints, limited resources, and a wide scope of the organization's operational and geographical areas the study focused only on two regional states namely Addis Ababa Administrative city and Tigray regions that have been working in providing protection and assistance to Eritrean refugees in Ethiopian. The study focuses basically on international and local NGOs humanitarian supply chain collaborations operations in the specified operation areas during the years 2018 through 2020.

## **1.6 Limitations of The Study**

Since the study is conducted on practices, challenges, drivers, and performance of humanitarian supply chain collaboration only in NGOs of the Eritrean refugee crises in Ethiopia, the result and findings do not indicate the practices, challenges, drivers, and performance of all Humanitarian organizations. The questionnaires were designed to measure the existing situation in the organization. Besides, the lack of related studies in the study area and resource constraint (time, budget, and logistics of accessing the respondents) are considered as limitations for this study.

## **1.7 Significance of The Study**

The study enriches the humanitarian organization staff approach to humanitarian supply chain collaboration planning, implementation, and evaluation of humanitarian supply chain collaboration. The study comments policies towards humanitarian supply chain collaboration planning, implementation, and financing as powerful management tools to improve the way humanitarian organizations and partners can achieve greater stakeholders' satisfaction and to further embed institutional capabilities. The study is also beneficial to humanitarian organizations, donor agencies, procurement and logistics professionals, and stakeholders involved in the humanitarian supply chain collaboration project or partnership management.

Although the study was conducted within international and local NGOs humanitarian supply chain collaboration for the Eritrean refugee crises in Ethiopia, it will also be relevant to other NGOs that wish to modify their collaborations by addressing the challenges facing NGOs' partners, illustrating their root causes, as well as identifying the key elements that allow effective horizontal partnerships between INGOs and LNGOs. Moreover, the study provides insights that help build additional knowledge in the study area by filling the knowledge gap that currently exists. Finally, the study is also important for humanitarian organizations to understand the various factors that determine the success of humanitarian supply chain collaboration or failure during service delivery.

## **1.8 Organization of The Study**

The study is organized into five chapters. The first chapter highlights the introduction which presents background knowledge, research gaps, objectives, scope, and limitations of the research. In the second chapter, literature and empirical studies on related topics are reviewed. The third chapter provides the research methodology focusing on the approach of the research along with the data collection procedures & analysis methods. The fourth chapter of the study thoroughly discusses the results and findings. Finally, the fifth chapter summarizes the core concepts of the study in the conclusion followed by the suggested recommendations.

## **1.9 Definition of Terms**

**NGOs:** are “self-governing, private, not-for-profit organizations that are geared to improving the quality of life for disadvantaged people” (Vakil, 1997). NGOs can be classified in different ways. For example, NGOs can be categorized into grassroots organizations or community-based organizations, support organizations, and intermediary organizations (Rahman, 2003). They can also be grouped into INGOs and LNGOs. NGOs deliver aid to refugees (Ferris, 2003; Libal and Harding, 2011).

**Disaster:** is a disruption that physically affects a system as a whole and threatens its priorities and goals (Van Wassenhove, 2006).

**Disaster Relief:** is often associated with sudden catastrophes such as natural disasters whereas man-made disasters are categorized as continuous aid work that is spread out over a course of time (Kovacs & Spens, 2010).

**Humanitarian Relief:** engages a large number and variety of actors each with different missions, interests, capacity, and logistics expertise. While coordination mechanisms within the domain of commercial supply chain management have been well studied, coordination in humanitarian relief chains is still in its infancy (Balcik *et al.*, 2010).

**Vertical and Horizontal Collaboration Supply Chains:** vertical collaboration refers to the extent to which an organization collaborates with upstream and downstream activities (Balcik *et al.*, 2010). Whereas, horizontal collaboration is defined as the extent to which an organization collaborates with other organizations at the same level within the chain. This study focuses on horizontal supply chain collaboration among NGOs (Balcik *et al.*, 2010).

## CHAPTER Two: **LITERATURE REVIEW**

This chapter embarks by briefly introduces and provides a systematic review of related literature on the works of various scholars in the area of practices, challenges, drivers, and performance of humanitarian supply chain collaboration. It includes definition and concepts such as an overview of disasters and types of relief operations, as well as phases of a disaster management system, Humanitarian supply chains versus commercial supply chains, NGOs' supply chain collaboration, and horizontal dyadic relationships are presented to clarify the characteristics of humanitarian supply chain collaboration between two NGOs. After this, there is a discussion on the type of constraints facing NGOs alongside the challenges, key drivers, and mechanisms that promote effective relationships. Empirical review related to the topic of the study, research gaps, and conceptual framework. Based on the literature review, this thesis sought to compose and evaluate those research questions and identifies measurement variables that are used for answering those research questions designed to assess humanitarian supply chain collaboration effective partnership of the Eritrean refugee crises in Ethiopia.

### **2.1 Theoretical Foundation**

#### **2.1.1 Principal Agent Theory**

Kaufmann and Dant (1992) and Macneil (1980) focused on contracting norms or shared expectations regarding transactional behavior ranging from one time discrete to ongoing relational exchanges. The latter category involves heightened perceptions of relational norms, which contribute to exchange partners' strategic ability to develop long term, committed, trusting, value-creating associations that are difficult and costly to imitate. Based on this logic, researchers propose that strong relational norms positively affect exchange performance. The relational norms perspective, drawn from relational exchange theory, often appears in conjunction with the commitment, trust perspective to explain the positive influence of relational marketing. The relational norms perspective proposes that the higher level of relational norms associates positively with a higher level of relationship performance (Cannon *et al.*, 2000).

### **2.1.2 Transaction Cost Theory**

The transaction cost perspective (Williamson 1975) focuses on the twin focal constructs of specific investments and opportunism to predict governance and exchange performance. In this sense, relationship-specific investments by an exchange partner simultaneously signal its intent and generate the need to safeguard investments. Because relationship-specific investments represent sunk, unredemptable assets in an exchange relationship, parties' relationship-specific investments reduce their motivation to behave opportunistically and the credibility of switching threats, which in turn minimizes the partner's need (and costs) to monitor performance or safeguard assets. Finally, he suggests that transaction-specific investments and partners' opportunistic behavior effect inter-organizational performance.

### **2.1.3 Network Theory**

Marketing researchers (Bucklin and Sengupta 1993; Kumar, Scheer, and Steenkamp 1995) argue that the exchange's dependence structure is crucial for understanding inter-organizational network relationship performance as it determines each partner's ability to influence the other. Many different approaches attempt to capture an exchange's dependence structure, but partners' interdependence usually affects performance positively. Partners work to maintain their relationship and avoid destructive actions, whereas dependence asymmetry undermines the relationship through fewer structural barriers to the use of coercive power. They suggest the dependence or power structure among exchange partners drives exchange performance and the level of inter-organizational conflict. Dependence has been widely studied as a critical determinant of inter-firm relationship performance in terms of financial outcomes, cooperation, and conflict, especially in the channel context.

### **2.1.4 Resource-Based Views Theory**

The resource-based view (RBV) of the firm counters industry structure as the focal unit of analysis for understanding firm performance; firms with resources and capabilities that are rare, valuable, and difficult to duplicate earn superior competitive advantage and performance (Wernerfelt 1984). The RBV of an inter-organizational exchange offers superior performance when relationship partners invest time, resources (assets), knowledge, and capabilities (e.g., relationship-specific investments) into a relationship to build an effective commitment and trust. The proximate drivers are in line with Dyer and Singh's (1998) premise that the RBV

framework should extend to inter-firm relationships to generate superior performance when partners combine or invest in idiosyncratic assets, knowledge, and resources, and employ an effective governance mechanism.

## **2.2 Theoretical Literature Review**

### **2.2.1 Disaster Management System**

#### **2.2.1.1 Types of disasters and humanitarian operations**

Van Wassenhove (2006) noted that disasters separated into four main categories: natural-sudden onsets (like earthquakes), human-made sudden onsets (like industrial accidents), natural-slow onsets (like poverty), and human-made slow onsets (like refugee crisis) and each of these disaster types requires a specific response. Humanitarian operations can be separated into disaster relief operations and continuous aid operations, the disaster category and current environment's stability are the key determinants of the type of humanitarian operations (Building & operating a medical clinic to take care of injuries, setting up & managing temporary camp for a refugee camp, setting up an educational program of family planning) (Kovacs & Spens, 2007). Disaster relief operations, on the other hand, evolve in unstable environments, such as sudden onset disasters (Search & rescue projects, vaccination campaign in a refugee camp, delivering of one-time service or product) (Balland & Sobhi, 2013).

#### **2.2.1.2 Phases of humanitarian collaboration in disaster management system**

To mitigate the negative impacts of disasters, disaster management systems can be segregated into four phases; mitigation, preparation, immediate response, and reconstruction phases. Each phase requires diverse resources and skills (Kovacs & Spens, 2007). Set of strategies are planned during phases one and two, whereas an actual program planning takes place in the third and fourth phases. The mitigation phase tries to prevent hazards from turning into serious disasters or reduce their destructive effects when they occur (Balland & Sobhi, 2013). Measures in this phase are categorized into structural and nonstructural and are used in the construction of flood levees, strengthening of existing buildings, land use planning, and insurances (Balland & Sobhi, 2013; Wenger, 2015). Hence, it varies from the

other three phases in that it requires long term planning and investment, thus making it the most relevant and effective phase against disaster effects (Balland & Sobhi, 2013).

During the preparedness phase, plans are set up in case a disaster occurs (e.g. pre-planning of logistics operations, communication systems, collaborations, distribution networks, stockpiling of relief items, establishing communication plans, and training of relief personnel) to ease services provision when disasters strike (Cozzolino, 2012; Miller *et al.*, 2015; Apte *et al.*, 2016). Therefore, all the knowledge that has been learned from previous experiences, is employed in this phase (Kovacs & Spens, 2007). Murray (2015) indicated that donors typically prefer their money goes directly to help victims by way of direct aid, the financing of preparatory measures is often neglected. Hence, regional actors such as regional governments, businesses, and NGOs should finance and lead preparatory initiatives.

In contrast, more attention is given to the response phase as this phase aims to save the affected people from direct danger and return the basic services as fast as possible. Therefore, precise information on evaluation capability to allow immediate support is critical (Cozzolino, 2012; Murray, 2015; Apte *et al.*, 2016). Furthermore, the challenge can be compounded if the disaster strikes in a less developed region, which from the onset may have insufficient infrastructures (Long and Wood, 1995). Consequently, these assumptions include the type and quality of supplies needed, the times and locations of demand, and the nature of the potential distribution of these supplies to any point of demand. Coordinating supply, the uncertainty of demand, transporting necessary and vital items to disaster victims are the main problem areas within the immediate response phase. And with what is called the last mile problem of transporting the correct items to beneficiaries (Long and Wood, 1995).

In the fourth phase, the reconstruction, restoring the areas affected by disasters to their previous state, comes. It is mainly concerned with the secondary needs of people such as restoring and rebuilding houses and city facilities. Other activities such as providing disaster debris cleanup, financial assistance to individuals and governments sustained mass care for displaced people and animals are also included. Thus, the long-term phase of reconstruction is overlooked such as enhancing infrastructures and conditions of the affected areas (Balland & Sobhi, 2013; Phillips, 2015; Murray, 2015). Kovacs & Spens (2007) and Phillips (2015) argued that for many disasters struck regions funding is often focused on short term relief and

that the reconstruction phase has largely been neglected in humanitarian aid as a whole. However, the reconstruction phase is maintained for equal importance as disasters can have long term effects on a region (Kovács and Spens, 2007).

### **2.2.1.3 Humanitarian supply network**

The humanitarian aid supply network is composed of international (e.g. international donors, international private companies, international aid agencies), and local actors (e.g. military forces, host governments, local aid agencies). The actors have diverse goals, organizational culture, religions, and expertise but closely work together when disaster strikes (Kovacs & Spens, 2007; Balcik *et al.*, 2010).

### **2.2.2 Humanitarian supply chain collaboration**

Inter-organizational collaboration refers to a collaborative process where two or more independent organizations working closely to program and implement their operations (Cao and Zhang, 2012). A horizontal dyadic supply chain collaboration refers to a collaborative effort between two organizations (Moshtari, 2013). According to (Lambert *et al.*, 1999) Humanitarian supply chain collaboration can be categorized depending on their level of collaboration collaborative relationships: as low level (type I), medium level (type II), or high level (type III).

The second dimension of the framework refers to the phases of humanitarian operations, which are divided into two general categories: preparedness, response, and recovery (Kovács and Spens, 2007). Each type includes a list of activities that are recommended during the preparedness, response, or recovery phases of disasters are addressed Since the study is exploring the horizontal humanitarian supply chain collaboration between international and local NGOs in the humanitarian sector.

Preparedness phase, plans are set up in case a disaster occurs. Thus, initiatives that belong to this category are those that intervene in consolidated standing problems and they prepare to mitigate the negative consequences of possible events. Response and recovery consist of addressing an event after it has occurred in order to mitigate the negative consequences for the people involved.

In type I or operational collaborations, partners collaborate on a single task or to a limited extent over a not for the long term period. type I initiatives at the preparedness phase includes networks, consortiums with goals and activities such as networking, sharing information through platforms such as irinews (humanitarian news and analysis) and relief web, building relationships, or representing the group in policymaking institutions (Cao and Zhang, 2012). At the response and recovery phase, humanitarian organizations jointly develop and pursue immediate solutions for common problems such as getting permission to enter the affected country. humanitarian organizations share information about the disaster situation, affected population, and the availability of resources (McLachlin and Larson, 2011). The goal is to adapt to the realities of the situation, improvise, and overcome obstacles to get the job done or develop immediate solutions.

In Type II or tactical collaborations, partners jointly execute several tasks, or several departments of each organization collaborate over a medium-term period. At the preparedness phase, the goals of collaborate initiatives are to prepare organizations to conduct their operations efficiently after a disaster strikes or prepare the organizations to jointly carry out a mission or project. Through initiatives such as humanitarian accountability partnership, standardized monitoring and assessment of relief and transitions, or Sphere Project, members develop standards or guidelines in various areas such as needs assessment, quality, or accountability and afterward promote them though training or consulting among organizations.

At the response and recovery phase, focusing on joint context and capacity analysis, or joint identification of critical issues (e.g., locations of supply chain disruptions or bottlenecks). Balcik *et al.* (2010) and Van Brabant (1999) suggest that humanitarian organizations can collaborate in terms of the prioritization of target groups, the regional division of tasks, or joint projects. The purpose of this type of coordination is to avoid duplication and gaps, optimizing the use of the available logistics and communications, and monitoring and evaluating the impact of the programs on the existing needs and capacities (Van Brabant, 1999). In type II collaboration, the sharing of the knowledge among partners includes the availability of supplies, schedules of aid deliveries, and their routing (Kovacs and Spens, 2010).

In type III or strategic collaborations, the organizations combine or integrate their operations to a significant degree. Partners have a long term scope on their relationship and consider others as the extension of themselves. This type of collaboration involves long-run joint planning and more integrated supply chain processes across functions and organizations. Arranging a formal contract among partners becomes more necessary as the collaboration intensity increases, moving from type I to type III.

In this level of collaboration, the focus of partners goes beyond information sharing, the development of standards and methods, or routines for the efficient operations and mostly rely on acting together. The relationship is in a long term scope and is active in several affected regions. the sphere project or emergency capacity building project is another example at the type III level of collaboration, in which several international humanitarian NGOs jointly work together on figuring out and dealing with a number of key capacity gaps during humanitarian operations.

In general, to provide efficient and effective relief services, the response phase of the humanitarian operation, managing information (i.e. collection, analysis and distribution/sharing) about the affected region, the amount of demand and supply is critical to decrease the environmental uncertainty and deliver an effective response to an event, but it is beyond the capabilities and resources of individual organizations. Moreover, providing information about active humanitarian organizations on the field facilitates the creation of partnership or collaboration among different humanitarian actors to share resources or jointly carry out their operations.

The next collaboration area is fund mobilization, which requires humanitarian organizations to capture more donors' attention and receive support for their efforts. Besides the above-mentioned activities and, in particular, at the preparedness phase of a humanitarian operation, collaborative initiatives focus on sharing their experience, acknowledging the best practice, developing standards and guidelines, or capacity building projects through training courses. Furthermore, many initiatives head to innovate new methods or technologies to enhance the efficiency and effectiveness of humanitarian operations such as supply chain management, needs assessment, and performance or impact measurement (Kovacs and Spens, 2010).

Verstrepen *et al.* (2009) characterize horizontal collaboration objectives as including cost reduction, growth, innovation, information, quick response, and social relevance. Within a humanitarian setting, horizontal collaboration can yield many benefits such as on-time delivery of products/services, cost-effective use of resources, greater service quality, organizational learning, access to more resources (e.g. financial, equipment, skills, information), diffusion of risk, working towards agreed priorities, improved organization's image to donors or public accountability, less competition over limited resources, avoiding unnecessary duplication of organizations' efforts or ability to buffer external uncertainties.

Due to the scale of global crises often means that international organizations, stretched thin by limited resources, the short life cycle of funded projects and competing claims, often cannot establish a long-term presence in countries affected by displacement, war, and other disasters. Besides, the life cycle of a given crisis as perceived by the international community especially global donors is usually no more than a few years. (Libal and Harding, 2011).

The managerial logic holds an instrumental perspective regarding civil society culture and environments of the host countries. Local civil society organizations are seen as flexible agents of service delivery. INGOs struggle with increased competition from the commercial sector and members' states, which hamper their effectiveness (Lewis and Kanji, 2009). Therefore, INGOs now work more often through LNGOs, supporting them with financial aid, in-kind donations, and upskilling. This enables the LNGOs to serve the vulnerable people through the entire response and rebuild stages (Ferris, 2003).

To achieve aid sustainability, Lewis (1998) warns INGOs' practices encourage a model of dependency, where local partners depend on the external resources of INGOs during project implementations and local organizations play the lead role in designing activities which have unequal power. Therefore, Libal and Harding (2011) emphasized that INGO-LNGO collaboration should be collaborative where LNGOs have more power and decision-making authority and have a strong knowledge relevant to their country's rules, refugees' geographical distributions and needs.

INGOs and LNGOs must collaborate in Ethiopia, a developing country with low levels of capacities and resources. In Ethiopia, civil society has played a small role in social development, due in part to a history of state control of this sector (UNHCR, 2018). More

than 17 INGOs and LNGOs are working to provide Eritrean and Ethiopian with basic aid and long-term development programs (UNHCR, 2019) in different fields, such as sanitation, nutrition, education, agriculture, early recovery, camp management, protection, and shelter, and especially women and child rights, food and healthcare.

Table 2-1 Collaboration Activities Among NGOs (adapted from Kovács and Spens, 2011)

<b>Level of Collaboration</b>	<b>Preparedness</b>	<b>Reponses and Recovery</b>
Collaboration Type III (High)	<ul style="list-style-type: none"> <li>• Capability building (e.g. sharing technical expertise in logistics, supply, packaging, and warehousing, and improving supply chain capabilities)</li> <li>• Developing customized products and services</li> </ul>	<ul style="list-style-type: none"> <li>• Resource sharing in multiple events (e.g. infrastructures, human resource)</li> <li>• Conducting joint projects in multiple events or regions</li> </ul>
Collaboration Type II (Medium)	<ul style="list-style-type: none"> <li>• Improving the processes (needs assessment, quality management, tracking and tracing, fleet management systems)</li> <li>• Developing operational standards (e.g. customs procedures)</li> <li>• Developing codes of conduct</li> <li>• Inventory pre-positioning</li> <li>• Joint procurement</li> </ul>	<ul style="list-style-type: none"> <li>• Sharing information on the availability of supplies, schedules of aid deliveries and their routing</li> <li>• Context and capacity analysis, or joint identification of critical issues (e.g., locations of supply chain disruptions or bottlenecks).</li> <li>• Optimizing the use of the available resources (e.g. logistics and communications)</li> <li>• Fund mobilization</li> <li>• Joint planning (i.e. the prioritization of target groups, regional division of tasks or joint projects)</li> </ul>
Collaboration Type I (Low)	<ul style="list-style-type: none"> <li>• Community building</li> <li>• Representing the group in policy-making institutions</li> <li>• Information sharing about characteristics of HOs, regional issues and events</li> <li>• Knowledge management and joint learning (exchange and disseminate of experiences and best practice)</li> </ul>	<ul style="list-style-type: none"> <li>• Information sharing about the disaster, affected population, the availability of resources</li> <li>• Overcoming obstacles to get the job done or develop immediate solutions (e.g. expediting late deliveries).</li> </ul>

### 2.2.3 Humanitarian supply chains versus commercial supply chains

The humanitarian supply chains are charged with ensuring efficient and cost-effective flow and storage of goods and materials to alleviate the suffering of vulnerable people in

unstable environments whereas the commercial supply chain is to deliver the right supplies in the right quantities to the right locations at the right time in the stable environment by a more predictable demand in terms of timing, type, and size (Thomas & Kopczak, 2005). Performance is hard to measure, affected people are not directly involved in the evaluation process, whereas in commercial supply chain ineffective members pay for their inefficiencies (e.g. fewer customers or profit) (Yu *et al.*, 2015). Lastly, inventory management in humanitarian supply chains is affected by unreliable, incomplete, or non-existent information about lead times, demand levels, and locations (Natarajan & Keene, 2015).

#### **2.2.4 Challenges of Humanitarian supply chain collaboration**

The most challenging problems and issues faced NGOs operating in developing countries is often hindered by several challenges, human resources issue organizational, financial dependencies complications in registration of NGOs, lack of interaction with other NGOs, complications in internationalization and financial crises (Stephenson Jr & Schnitzer, 2006; McLachlin & Larson, 2011; Houghton, 2011; Cooley & Ron, 2002; Taylor *et al.*, 2012).

The disparity of power among partners is another related subject that requires more rigorous investigation within a humanitarian setting. Organizations with less power (i.e., resources or access to information and media) are less motivated to engage in collaboration efforts or even resist a mandate's request for collaboration in this environment is another challenge (Campbell and Hartnett, 2005; Tchouakeu *et al.*, 2011).

Balcik *et al.* (2010) noted another challenge NGOs mismanage their resources quite often and with the involvement of their board members that utilize the NGOs resources. This happened due to poor governance strategies of NGOs. the NGOs are facing many diverse challenges in the context of human resources and there is no priority by the NGOs for investing in nurturing human resource capacity is a staff retention programs in the organization; due to short-term nature of projects (Dolinskaya *et al.*, 2011; Tchouakeu *et al.*, 2011).

They may also not have the ability to plan, implement, or evaluate joint programs, high staff turnover, and the employment of new and inexperienced humanitarian managers (Moshtari and Gonçalves, 2017). When NGOs are recruiting the employees, they are facing

the challenge of retaining them up to the completion of the project, as the employees leave the organization before completion of the project and in the ability to provide good incentives and attractive benefits to the employees adversely affected the morale of the employees and their performance (Sommers and Watson, 2000; Cooley and Ron, 2002; Balcik *et al.*, 2010; Dolinskaya *et al.*, 2011).

International NGO faces a wide range of challenges when collaborating with LNGOs, including financial problems and funding restrictions during the preparedness phase (Moshtari and Gonçalves, 2017; Thévenaz and Resodihardjo, 2010; Zoraster, 2006) While much humanitarian action is funded and organized for the short term projects so they cannot use them to strengthen their collaborative relationships and funds are sometimes available in special situations that might be considered to threaten humanitarian principles, such as violation from neutral or impartial humanitarian action (Sommers and Watson, 2000; Cooley and Ron, 2002; Balcik *et al.*, 2010; Dolinskaya *et al.*, 2011).

They also face limited and lack of institutional capacity specifically during peak seasons that bring about intense competition over media (Cooley and Ron, 2002; Cairns, 2012; Van Brabant, 1999; Weiss, 2013). Poor networking and communication system create problems and challenges in the implementation of developmental programs (Schulz and Blecken, 2010; Tchouakeu *et al.*, 2011; Steets *et al.*, 2010; Akhtar *et al.*, 2012) and an absence of mutuality at both the complex strategic and operational level decisions in a very short time (Balcik *et al.*, 2010; McEntire, 2002; Dolinskaya *et al.*, 2011; Akhtar *et al.*, 2012).

Moshtari and Gonçalves (2013) four categories of challenges (inter-organizational, organizational, external, and donor-related), that interrupt building effective dyadic partnerships among NGOs, have been reviewed (see Table 2-2).

Table 2-2 Challenges affecting the collaborative effort among NGOs in the humanitarian sector (adapted from Moshtari and Gonçalves 2013)

Challenges	Category	Indicators	References
External challenges	Context	Location and timing of disasters Availability of adequate & reliable information Political environment	Balcik et al., 2010; McEntire, 2002; Sommers & Watson Jr, 2000
	Demand	Quantity, characteristics and needs of affected population Urgency of relief response	Balcik et al., 2010; Dolinskaya et al., 2011; Tchouakeu et al., 2011
	Supply	Remaining local infrastructure	Balcik et al., 2010; Cooley and Ron,

		Availability of local and international resources Number and experience of involved Humanitarian organizations	2002; Van Van Brabant ,1999
Inter-organizational challenges	Strategic compatibility	Shared organizational objectives, missions, mandates Shared cultural values Shared language Level of trust among organizations Strength of sense of mutuality	Akhtar et al., 2012; Balcik et al., 2010; Schulz and Blecken, 2010; Vilain, 2002; Thvenaz & Resodihardjo, 2010; Van Brabant ,1999; Zoraster, 2006
	Operational compatibility	Similar operational policies Similar programming approaches, timeframes Similar standards and techniques	Akhtar et al., 2012; Campbell & Hartnett, 2005; Dolinskaya et al., 2011; Steets et al., 2010
	Competition	Competition for funds Competition for visibility & media coverage	Dolinskaya et al., 2011; Stephenson Jr & Schnitzer, 2006; Weiss, 2013
	Power	Similarity in organizations' power and resources Symmetry between the parties	Campbell & Hartnett 2005, McLachlin & Larson, 2011; Tchouakeu et al., 2011
Inter-organizational challenges	Process	Adequate mechanisms to allocate costs, benefits, risks Accountability over performance Clear roles and responsibilities Adequate access to tools and technical skills Adoption of transparent and responsible policies	Dolinskaya et al., 2011; Knudsen, 2011; Thvenaz & Resodihardjo, 2010
Organizational challenges	Unclear benefits	Bureaucracy, transparency, accountability, flexibility Required speed of response Risks to own competencies Risks to humanitarian identity	Akhtar et al., 2012; Balcik et al., 2010; Cairns, 2012; Campbell & Hartnett, 2005; Houghton, 2011; Schulz & Blecken, 2010
	Capabilities	Propensity toward command & control focus Management capacity & leadership style Staff capability (e.g. attitude, knowledge, experience) Incentives towards collaboration	Akhtar et al., 2012; McEntire, 2002; Tchouakeu et al., 2011; Thvenaz & Resodihardjo, 2010
	Resources	Availability of resources Stability of team leaders & focal points	Akhtar et al., 2012; Balcik et al., 2010; Dolinskaya et al.,2011; Rawal et al.,2005; Bromideh, 2011;Van Brabant, 1999
Donors-related challenges	Use of Resources	Timing of resource availability Required burn rates Earmarked funds establish uses	Balcik et al., 2010; Stephenson Jr & Schnitzer, 2006
	Incentive Mechanism	Access to short-term & reusable contracts Competition over scarce local resource	Cairns, 2012; Cooley & Ron, 2002; Taylor et al., 2012

### 2.2.5 Drivers of Humanitarian supply chain collaboration

NGOs collaborate to improve their organizational capacities, maintain sustainability, to shape discourses, and enhance the effectiveness and efficiency of their relief operations

(Snaveley & Tracy, 2000; INTRAC, 2001; UK Charities Commission, 2009; Mitchell, 2014; Dütting and Sogge, 2010).

As with the challenges, there is a wide variety of NGO collaborative drivers (see Table 2-3). Political effects have been highlighted as one of the main reasons for collaboration among NGOs (Sowa, 2009; Scobie *et al.*, 2013). NGOs unite to reinforce their position and to develop a focal point to facilitate communication with governments. They also collaborate to increase their influence in debates, enhance political standing, and lobbying (Richards and Heard, 2005; UK Charities Commission, 2009; Incentivizing Collaboration Workshop, 2012).

NGOs also collaborate initiate collaboration to share resources, Empowerment and ownership (Emerson *et al.*, 2012; Mitchell, 2014; Waugh and Streib 2006), since sharing can lead to the creation of knowledge, greater fundraising capacity, economic efficiency and organizational sustainability (UK Charities Commission, 2009). Effectiveness is also expected to be achieved from both sharing resources and political influence, as partnerships allow NGOs to enhance reliability and potentially increase competitiveness (Scobie *et al.*, 2013).

NGOs also collaborate to maintain security and the safety of their employees because of their reach and closeness to vulnerable people (Michael, 2002; INTRAC, 2001). Gray (1985) and Gazley and Brudney (2007) suggested that NGOs can work as a team, using fewer resources to achieve more and to achieve greater service quality, diffusion of risk, improved public accountability, ability to buffer external uncertainties, and conflict avoidance.

NGOs collaborate to Reduced competition over scarce resources and Some of the less mentioned drivers include: initiating partnership to solve complex problems especially when the traditional methods have been used unsuccessfully (Emerson *et al.*, 2012; Gray, 1985), collaborating because of the similarity in causes, goals, or values (Benedetti, 2006; Fleishman, 2008; Snaveley and Tracy 2000), collaborating because of the potential effect leaders within NGOs and networks may have in establishing and managing connections between possible collaborators (Fleishman, 2008).

Table 2-3 NGO collaboration drivers (adapted from Moshtari, 2013)

Category	Indicator	Time horizon	References
Efficiency	Reduce cost Eliminate duplications similarity in causes, goals or values	Before & after Before & after Before a disaster	UK Charities Commission (2009), Snavelly and Tracy (2000), Waugh and Streib (2006), Benedetti (2006), Fleishman (2008)
Service quality	Sharing & capacity building. Increase effectiveness Tackle complex problems	After a disaster Before & after After a disaster	Emerson <i>et al.</i> , (2012), Mitchell (2014), Scobie <i>et al.</i> , (2013), Sowa, (2009), Gray (1985)
Communication	A focal point to deal with governments Manage connections between possible collaborators	Before & after Before a disaster	Richards and Heard (2005), UK Charities Commission (2009), Incentivising Collaboration Workshop (2012), Fleishman (2008)
Environmental	Sustainability Security and safety	After a disaster After a disaster	INTRAC (2001), Michael (2002)

### 2.2.6 Measuring Performance of Humanitarian supply chain collaboration operations

Like their commercial counterparts, humanitarian supply chain collaboration also needs to have a performance measurement scheme to judge if the operations are failures or successes and are critical to NGO accountability.

Kauppi *et al.* (2016) and Seo, Dinwoodie & Roe (2015) state that effective and efficient performance measurement metrics would assist relief chain practitioners in their decisions, help improve the effectiveness and efficiency of supply chain processes operations, and demonstrate the performance of the relief chain, thereby increasing the transparency and accountability of disaster response the most effective is considered is supply chain collaboration.

To measure performances of an organization different models can be applied. Out of them a well-known system and popularly accepted performance measurement model developed, and supply chain management had been measured by operational performance and its indicators were quality, flexibility, customer service, delivery, and cost performance (Kauppi *et al.*, 2016).

A model has been developed for measuring performance and revealed that for measuring overall performance, these items should be considered cost reduction, quality goods or services, adaptability (flexibility), customer satisfaction, capacity, time, as well as consistency (Shahbaz, Rasi, Zulfakar, Bin, Abbas & Mubarak, 2018). Thus, this study was considered all the requirements for better collaboration performance. According to Ataseven and Nair, (2017) modern information sharing, joint decision making, and teamwork are the major dimensions of supply chain management approaches.

According to these models, five performance attributes should be considered in assessing the performance of a humanitarian supply chain collaboration function in place. These performance attributes are responsive, cost-effectiveness, flexibility, quality, and customer service are those facing towards customers. effectiveness refers to the ability to reach more beneficiaries in a short period, and efficiency refers to services provided by NGOs. Effectiveness is the common outcome of flexibility that will accelerate aid delivery and enhancing the effectiveness and efficiency of their operations, thus enabling the delivery of high-quality services to their beneficiaries.

Simatupang and Sridharan (2002) noted that supply chain parties integrate means two or more chain members working together to create a competitive advantage through sharing information, making joint decisions, joint planning, and sharing benefits which result from greater profitability of satisfying end customer needs than acting alone. Companies that have recognized opportunities that exist there in the supply chain management and direct their effort towards developing a competitive supply chain based on speed, flexibility, innovation, quality, and responsiveness had significantly improved customer service and thus profitability. Such a strategic move is basically to reduce costs through increased efficiency and effectiveness. Therefore, the ultimate goal of supply chain management is to enhance competitive performance by closely integrating customer service and cost are common considerations for both the supply chain and the relief chain (Kim, 2006).

Companies trading partners should get out of mere coordination and move towards collaborative supply chain management in an effort to reduce the information imbalances that result in dreaded bullwhip effect, while the main responsibility of NGOs is perceived to be toward the beneficiaries to market demand and customer service. The collaborative supply

chain goes beyond mere exchanging and integrating information between suppliers and their customers and involves tactical joint decision making among partners in the area of collaborative planning and remote demand forecasting, distribution, and product design (Kim, 2006).

### **2.2.6.1 Technical mechanisms**

Many policies or mechanisms trigger the drivers of collaboration within the aforementioned categories to support effective partnerships among NGOs in the humanitarian sector. In this study, five technical mechanisms (ICT, DSS, incentive mechanisms & capability-building initiative, inter-organization governance), selected to formalize the proposed conceptual model (Moshtari and Gonçalves, 2017).

#### **2.2.6.1.1 Information and communication technologies (ICT)**

ICT mechanism is selected to enhance the communication and transparency among stakeholders. Sharing information about the affected territories or vulnerable regions (e.g. affected population statistics, potential needs, available local resources, the characteristics of the local or regional governance system, and the host government's policies), and information about the active humanitarian actors (organizations) (e.g. projects, operations performance, partnerships with other organizations, and existing collaborations) assists in maintaining effective communication between stakeholders, decreases the effect of environmental turbulence caused by actors on site, increases the speed of response, and strengthens relationships (Moshtari and Gonçalves, 2017).

#### **2.2.6.1.2 Decision support systems (DSS)**

DSS can help NGOs to explore new tactics and make better decisions, for example, the location of distribution centers and numbers (Moshtari, 2013). Collaborative DSS may help overcome humanitarian organizations' differences in objectives and missions of stakeholders and resolve conflicts, thus increasing trust and commitment, by delivering a shared service (Campbell & Hartnett, 2005). This can be achieved by designing platforms that combine data from various stakeholders to allow effective strategic and operational planning during disasters. Thus, instead of surveying the same vulnerable people several times, by different humanitarian organizations, which is described as an ineffective process, the data can be collected by authorized delegates and later shared with stakeholders (Moshtari, 2013). Joint

Decision Making at strategic, tactical, and operational level improves the magnitude of relationship quality, strength, and closeness that ultimately enhance collaborative performance (Campbell & Hartnett, 2005).

#### **2.2.6.1.3 Effective incentive mechanisms and Capability-building initiatives**

Campbell & Hartnett (2005) suggested several incentive programs that support long-term relationships were designed, for example, the humanitarian innovation fund is a collective effort to develop, test and share new technologies and processes that will make humanitarian aid more effective and cost-efficient in the future, Donors can promote a context in which NGOs compete towards building capabilities.

Additionally, they work together in joint projects and observe the best practice NGOs' strengths and capabilities. These types of actions lead to capability building competition (Wilhelm, 2011; Moshtari, 2013; Cooley & Ron, 2002) which change the competition on media attention and funding resources to competition over-improving capabilities to provide right humanitarian services in the right time and right quality. By acting this way, the competition will be changed from competing for funding to competition over enhancing competencies and creating customer value.

#### **2.2.6.1.4 Effective inter-organizational governance**

Balcik *et al.* (2010) argue that existing collaboration efforts are characterized by low transaction costs (e.g., simple requirements, little technological uncertainty, low negotiation costs), such as collaborative procurement and third party warehousing. To ensure the move toward long-term strategic collaborative initiatives (e.g., 4PLs, warehouse standardization, transportation collaboration, etc.), this will also allow better forecasting and negotiating power, as well as efficient, effective, and high-quality relief operations. As an operational approach toward such collaborative networks (Dolinskaya *et al.*, 2011) refers to a membership subscription approach in which interested NGOs subscribe to the coordinative mechanism and qualified applications are admitted. Given the structured admission process of reliable and capable partners, organizational commitment and inter-organizational trust are high, promoting an effective collaborative initiative.

### **2.2.6.2 Relational mechanisms**

In this study, nine relational mechanisms (Commitment, mutual trust, relationship-specific investment, long term orientation, strategic, operational and resource complementarity, coordination capability, and relational capability), selected to formalize the proposed conceptual model (Moshtari and Gonçalves, 2017).

Commitment is an enduring desire to maintain a valued relationship (Moorman *et al.*, 1992), is a critical element of relationship capital (Madhok, 1995) and It has a positive impact on the partnerships' performance in terms of efficiency, flexibility, and effectiveness (Gundlach *et al.*, 1995). Partners through commitment, dedicate continuously tangible resources or conduct some tasks to attain the relationship objectives (Shah and Swaminathan, 2008). In a humanitarian context, resources can be funding resources, access to media, human resources, skills, time, or infrastructure dedicated to a collaborative initiative. Morgan and Hunt (1994) refer to the lack of commitment as a reason for collaborates' failures. Committed partners also demonstrate an enduring enthusiasm to maintain valuable relationships (Anderson & Weitz, 1992; Moorman *et al.*, 1992). Thus,

***Hypothesis H1: Partners' reciprocal commitment is positively associated with supply chain collaborative performance.***

Relation specific investment could be an investment in personnel and training programs, procedures of conducting joint tasks, designing interfaces, communication channels, knowledge-sharing routines, dedicated human resources, and specific coordinative initiatives that facilitate or improve the relationship and collaboration among organizations (Grover & Malhotra, 2003). Grover and Malhotra (2003) refer to several types of relation specific investment including investments in facilities, equipment, personnel, and firm or process-specific training associated with the production of goods or services that have little or no use outside the exchange relationship. Relation specific investment raise switching costs and interdependence among partners (Gilliland and Bello, 2002). They raise the level of coordination, lower interaction costs, and improve product innovation (Palmatier *et al.*, 2007), and allow partners to "accumulate specialized information, language, and know-how (Dyer and Singh, 1998). Thus,

***Hypothesis H2: Partners' engagement in relationship-specific investment is positively associated with supply chain collaborative performance.***

Trust is defined as confidence in an exchange partner's reliability and integrity influences horizontal collaboration (Morgan and Hunt, 1994). Benevolence and competence are two dimensions of trust (Moorman *et al.*, 1992). It has a positive impact on collaborative performance in terms of efficiency, flexibility, and effectiveness (Cheng *et al.*, 2016). This is because trust reflects the partner's goodwill to identify, examine, and resolve the complicated issues openly (Shah & Swaminathan, 2008; Cheng *et al.*, 2016), respect each other's suggestions, forgive mistakes, and allow equal participation in planning and decision making which could raise flexibility and efficiency in inter-organizational partnerships (Huxham & Vangen, 2000). Thus,

***Hypothesis H3: Partners' mutual trust is positively associated with supply chain collaborative performance.***

Long term orientation: collaborative practices need considerable time for several tasks such as sharing information or decision making which eventually could lead to longer response times (Das *et al.*, 2006). However, Humanitarian organizations have limited time to react to the beneficiaries' needs which provides limited time for establishing and managing collaborative relationships among Humanitarian organizations (Balcik *et al.*, 2010; Dolinskaya *et al.*, 2011). Additionally, donors put pressure on Humanitarian organizations to provide humanitarian services through short term funding contracts often for durations of only three or six months (Minear and Smillie, 2003). Nevertheless, a group of humanitarian organizations is obliged through their mandates to work for a short time on the field. In a successful collaboration, long-term orientation has a positive impact on organizations' success (Cheng *et al.*, 2004; Morgan and Hunt, 1994), especially when the uncertainty level is relatively high (Noordewier *et al.*, 1990). Thus,

***Hypothesis H4: Partners' long term orientation is positively associated with supply chain collaborative performance.***

Strategic compatibility refers to the degree of congruency among organizations' goals, missions, or value systems (Holcomb and Hitt, 2007). Operational compatibility refers to utilizing similar supply chain systems, information systems, communication technologies,

operational procedures, and knowledge sharing routines within partners. The extant literature indicates the positive effect of inter-organizational fit on relationship performance such as reducing conflict or monitoring cost, increasing synergy, exploring and exploiting new opportunities, or less need to formal contracts.

Another aspect of partners' characteristics is associated with resource complementarity among partners. Resource complementarity refers to the level of dissimilarity among partners' resources or capabilities (Mowery *et al.*, 1996). Scholars argue that resource complementarity has a positive impact on inter-organizational relationships (Aulakh *et al.*, 1996; Sarkar *et al.*, 2001). thus,

***Hypotheses H5: Partners' fit (strategic compatibility) is positively associated with supply chain collaborative performance.***

***Hypotheses H6: Partners' fit (operational compatibility) is positively associated with supply chain collaborative performance.***

***Hypotheses H7: Partners' fit (resource complementarity) is positively associated with supply chain collaborative performance.***

Coordination capability refers to the ability to define the problem or task, making decisions, divide each partner's roles or responsibilities, and controlling its performance. Moreover, coordination capability facilitates understanding the interdependency and complexity of collaborative tasks, identification, and arrangement of the collaboration tasks (Schreiner *et al.*, 2009) which may result in partners' pledges to put their maximum effort to maintain it or dedicate the required resources to make it a success. Besides, humanitarian organizations with coordination capability can develop working procedures and task executions, design interfaces, communication channels (Noordewier *et al.*, 1990) enhancing collaboration efficiency. Thus,

***Hypothesis H8: Partners' coordination capability is positively associated with supply chain collaborative performance.***

Relational capability includes two skills of communication and bonding. Communication includes the ability to employ formal and informal methods to efficiently convey information to partners in a timely, accurate, and complete manner (Schreiner *et al.*, 2009). Bonding

indicates an ability of an organization to engage in a gradual process in which exchange partners could socially integrate and provide instrumental or expressive value (Schreiner *et al.*, 2009) to the partner(s). Communication and bonding skills have a positive effect on partners (Mohr *et al.*, 1996). Thus,

***Hypothesis H9: Partners' relational capability is positively associated with supply chain collaborative performance.***

## **2.3 Empirical Literature Review**

### **2.3.1 Humanitarian supply chain collaboration Practices and the critical success factors**

A review of the literature reveals that a few research on the practice, challenges, drivers, and performance of humanitarian supply chain collaboration has been undertaken in developed countries context and their applicability in developing countries such as Ethiopia is not yet to be explored. Developing countries in the Asian continent have carried some studies on challenges and performance of humanitarian supply chain collaboration while in Ethiopia not yet (Balcik *et al.*, 2010; Schulz and Blecken, 2010). Therefore, it is imperative to assess the practices, challenges, drivers, and performance of humanitarian supply chain collaboration in the Eritrean refugee crisis in Ethiopia.

Al Adem *et al.* (2018) in their research entitled "Horizontal collaboration between international and local non-governmental organizations: A cross-sectional study regarding the Syrian refugee crisis in Jordan," identified the key drivers and challenges of international and LNGO supply chain collaboration in the humanitarian sector. Decrease unemployment rate, royal, and smaller LNGOs cooperation, reputation, and credibility, tribal connections, access to private funding were the main drivers. Level of trust among organizations, the strength of the sense of mutuality, similar programming approaches and timeframes, the similarity in organizations' power, and resources, the symmetry between the parties, mechanisms to allocate costs, benefits, risks, accountability over performance, clear roles and responsibilities, adoption of transparent and responsible policies, bureaucracy, transparency, accountability, propensity toward command and control focus, availability of resources, the stability of team leaders and focal points, required burn rates number and experience of

organizations were the main challenges facing LNGOs and INGOs when developing partnerships that have an impact on humanitarian supply chain collaboration.

The research suggests that mechanisms of trust and respect should be improved to allow cost-efficient and flexible relationships. It also refers to transparency as a social means that plays a critical role in enhancing trust between partners, while it classifies commitment and relation specific investment as correlating mechanisms that are necessary to preserve a valuable relationship, where partners can enhance their returns significantly. Interestingly, flexibility in management was added owing to its practical role in integrating relational mechanisms (accountability and sympathy toward communities, equity, transparency). Concerning technical mechanisms, the researcher highlights five categories: coordination, outsourcing, monitoring, and communication. Under these categories, different mechanisms were introduced, outsourcing offers a standby capacity in specific areas when the required resources exceed the clusters' capacity. Furthermore, Common mechanisms were also included, such as measurement indicators, ICT, and DSS.

Moshtari and Gonçalves (2017), in their research entitled "Factors influencing inter-organizational collaboration within a disaster relief context," identified four categories of factors such as external factors (unpredictable situations, demand, and supply), factors associated with donor's role (limitations on the usage of resources and incentives mechanisms), inter-organizational factors (strategic and operational compatibility, competition, power, and coordination process), and organizational factors (concerns associated with collaboration, resources, and collaborative capabilities) influencing collaboration performance among international humanitarian organizations. Specifically, the study highlights the factors which affect the coordination effort and guides the humanitarian organization's managers in developing strategies for increasing the horizontal coordination performance.

The study suggests that commitment (will and motivation of partners to save or continue the relationship) and trust (confidence in an exchange partner's reliability and integrity) are key drivers of collaboration performance among international humanitarian NGOs. Relationship-specific investment improves the effectiveness or efficiency of collaboration efforts but in this context, its influence on collaborative performance is indirect and through

reciprocal commitment. Moreover, temporal orientation (long term versus short-term orientation), inter-organizational fit (i.e. strategic compatibility, operational compatibility, resource complementarity), and relationship management capability (i.e. coordination capability, relational capability) inhibit or drive the collaboration performance through their effect on commitment trust and relationship-specific investment.

### **2.3.2 Challenges in Humanitarian supply chain collaboration and their impact**

A study conducted by Balcik, Beamon, Krejci, Muramatsu, and Ramirez (2010) on coordination in humanitarian relief chains: practices, challenges, and opportunities: asserted in their studies that challenges on gathering, collating and disseminating critical information and data (e.g., infrastructure assessments and updates, transportation availability and capacity, customs issues, maps, health, logistics, emergency telecommunications, nutrition); providing information-sharing tools (e.g., websites and mailing lists); tracking relief supplies and prioritizing cargo movement; facilitating the pooling of scarce logistics assets meeting minutes were not translated into the local language; cost efficiencies, prevent duplication of effort and improve response time, sometimes these benefits may come at the expense of increased bureaucracy and decreased flexibility.

The level of engagement of international NGOs with national NGOs may vary depending on the characteristics of the particular disaster relief situation. However, since local agencies are generally more knowledgeable about the needs of local communities and the characteristics of the region, international actors would benefit from cooperating with local agencies, especially in demand assessment and in the last-mile distribution of challenges that hinder the performance of humanitarian supply chain collaboration operation (Balcik *et al.*, 2010).

Bromideh (2011) also identified the widespread challenges of NGOs in developing countries: case studies from Iran, the central theme of this research is to investigate the challenges that face the Iranian NGOs. The challenges face NGOs can be categorized into two main groups: 1) inter-NGO and 2) intra-NGO. The first category includes all internal and organizational issues that an NGO bears. Typically, financial matters, human resources, management skills, internal communication are the main challenging issues within an NGO. The second group of challenges falls into two subgroups and have either nationwide scope or

international one. Registration, relationship with governmental organizations, interaction with private sectors are the most important challenging issues at the national level; and religion, politics, internationalization, and financial crisis are the key issues at the international level. Regarding performance measurement, unfortunately, fostering and weak performance of few NGOs have corrupted the image of other NGOs and it is difficult to persuade people to support NGOs through donations and volunteer activities. Moreover, paid staff often receive indifferent pieces of training and lower wages than their commercial counterparts, which can lead to a lack of understanding of the broader context (Bromideh, 2011).

Vilain (2002) conducted a study on Nonprofit management current challenges for personnel management in German welfare organizations and their impact on performance, has concluded that the main challenges for professional work, i.e., staff recruitment, assignment and layoff as well as human resource development and administration, finally, everyday management of staff. If management decides to take the challenge of change, some conditions must be rearranged. Part of these conditions is paying tariffs. This is no call for a reduction of wage, but for more flexibility and for more incentives, payment must be raised for both highly qualified management and good workings, highly motivated staff. Nevertheless, many facilities and organizations are thinking about quitting the official salary scales or try to avoid them by sourcing out certain services. But in order to obtain government funding or similar salary scale must be fulfilled.

Challenge for volunteer work, i.e., change of lifestyle, reliability, continuity, professionalization dilemma, qualification dilemma, loss of profile, and isomorphic development. In many cases, professionalized working fields were started by volunteers at some stage. Another important task is to create new forms of participation such as innovative time management matching the need for different target groups and if not existing, the introduction of project management. Therefore, they must introduce human resource development plans for volunteers that match their specific roles in the organizations. To improve their poor performance, organizations must rethink their structure, skill, and professionalize their work. The research classified the challenges faced as a lack of trained collaborative personnel and a lack of access to specialized humanitarian collaborative courses.

According to the research done by Balcik *et al.*, (2008) whether there is actual or potential large-scale displacement, NGOs have to get the right assistance to the right place at the right time at the right cost. The challenges faced in achieving this are many and complex such as the speed of delivery, the influx of humanitarian staff, gaps in NGO capacity, lack of depth in knowledge, funding biased towards short-term and lack of investment in technology and communication, the staff of humanitarian organizations also lack experience regarding relief work since most of them have backgrounds related to the commercial world, and the challenge arises from damaged infrastructure, limited transportation resources, and the sheer amounts and bulk of supplies to be transported.

Similarly, Thévenaz and Resodihardjo (2010) observe that efforts are duplicated, resources are used in an unproductive and ineffective way or are wasted, relief efforts are slow, impeded, or obstructed. The lack of coordination results in ineffective aid distribution particularly in the last mile (Murray, 2005); causes congestion at local airports and roads; can lead to injury or death of aid recipients struggling to attain services (Moore *et al.*, 2003); leads to competition among humanitarian organizations over limited available resources, rising costs and increasing delays for services (Chang *et al.* 2011).

### **2.3.3 Drivers in Humanitarian supply chain collaboration and their impact**

Sowa (2009) researched the collaboration decision in nonprofit organizations: views from the front line, political effects; information sharing; productivity; accessibility; resource-sharing (information situation reports and consistent communication on management plans, capabilities various knowledge and experience from other organizations); enhanced services; comprehensive service delivery; and legitimacy with some parts of the community have been highlighted as the main reasons for collaboration among NGOs. The study assumes that resource dependency, environmental uncertainty, pressure from funders, and the development state of the organization will influence nonprofit's collaboration decisions. Involvement in collaborative relationships and maintaining them require a dedication of time, human capital, and financial resources and NGOs unite to reinforce their position and to develop a focal point to facilitate the communication with governments this was found to be strongly correlated with drivers does among the variables under study.

Scobie *et al.* (2013) presented empirical findings on the fact that the connection between networking and performance requires a better definition of networking modes. Moreover, network theory indicates that organizations can be motivated to collaborate from their prehistory collaboration or interaction with other organizations. In this regard, organizations purposefully develop inter-organizational networks to achieve their goals. From the perspective of neo-institutionalism, inter-organizational networks are constrained by a variety of institutional pressures, such as the organization's dependence on its funding source, the specific social issue, and governmental policy. At the individual organizational level, inter-organizational ties were described as an NGO's strategy to obtain information and external resources, build capacities, and enhance managerial performance. Besides, inter-organizational collaboration allowed NGOs to improve program outcomes and service delivery to clients. Effectiveness is also expected to be achieved from both sharing resources and political influence.

Dütting and Sogge (2010) conducted a study to building safety nets in global politics that NGOs collaborate for solidarity and sustainability. NGOs collaborating to influence key debates and discussion, protection, higher political standing, and uptake of new themes. The effectiveness in collaboration and the ability to impact the interplay between the local and the global depends on many things. The research points four factors for sustaining NGO interaction, i.e., personal trust at the level of leaders (NGOs cannot easily keep inter-organizational links alive), specific socio-political settings and events (local or national political crises often drive interaction), pragmatism (clear division and complementarity of tasks, transparency, and readiness to acknowledge publicly everyone's contributions to an effort), and incentives to collaborate that are conscious but have less to do with short-term gains (information and the protection derived from large numbers).

The research also suggests several factors putting collaboration at risk or blocking it altogether. Among the most frequently cited were irreconcilable differences in organizations' ideologies and objectives, irreconcilable differences in leadership styles leading to problems of transparency and insufficient mutual respect and trust, competition among NGOs for donor funding, and withdrawal of donor funding for collaborative activities. Success here can depend on shaping interpretations or framing of issues as well as on seizing political opportunities. Indeed, NGOs may encounter local authorities with less decision-making

power overall but more power to shape the implementation and execution of policies made elsewhere. Some Latin American NGOs have started to link up with local government institutions. But most NGOs seem to have hardly begun to adjust their collaboration in ways that match these new political and economic realities.

Gazley and Brudney (2007) identified the purpose (and perils) of government-nonprofit partnership on Georgia, mentioned that NGOs collaborate to achieve greater service quality, diffusion of risk, improved public accountability, ability to buffer external uncertainties, and conflict avoidance. Based on two large and comparable samples from Georgia, the motivation to partner is driven by a desire to secure those resources scarcest for the respective sector: expertise and capacity for government, funding for nonprofits.

Their results recommend the motivations to partner tend to be driven by a desire to secure resources that are scarcer for the respective sector: expertise for government, funding for nonprofits. Advocates of collaboration have amassed an extensive list of the potential benefits of inter-organizational cooperation, including its ability to address shared problems more effectively, efficiencies, greater service quality, organizational learning, access to new skills, diffusion of risk, improved public accountability, ability to buffer external uncertainties, and conflict avoidance. However, high levels of uncertainty also create additional barriers to coordination. The study found that 54% of human service nonprofits reported partnering with government.

## **2.4 Conceptual Framework of the study**

Many factors impact the effectiveness of humanitarian supply chain collaboration between INGOs and LNGOs. These factors being numerous and having theoretical backing from past literature and performance reports have been proven to have an impact on the effectiveness of humanitarian supply chain collaboration between INGOs and LNGOs. This study, however, focuses on the practices, challenges, drivers, and performance of humanitarian supply chain collaboration delivered by INGOs and LNGOs on a few factors as depicted in this conceptual framework. These factors include humanitarian supply chain collaboration drivers and challenges, technical & relational mechanisms issues. The conceptual framework is a combined modification of the conceptual frameworks developed by prior studies (Moshtari and Gonçalves, 2017). Based on this the study developed a

conceptual model to indicate the interconnection between dependent and independent variables. Figure 2-3 is designed to answer the question of how effective collaboration between an INGO and a LNGO could be created in the humanitarian sector.

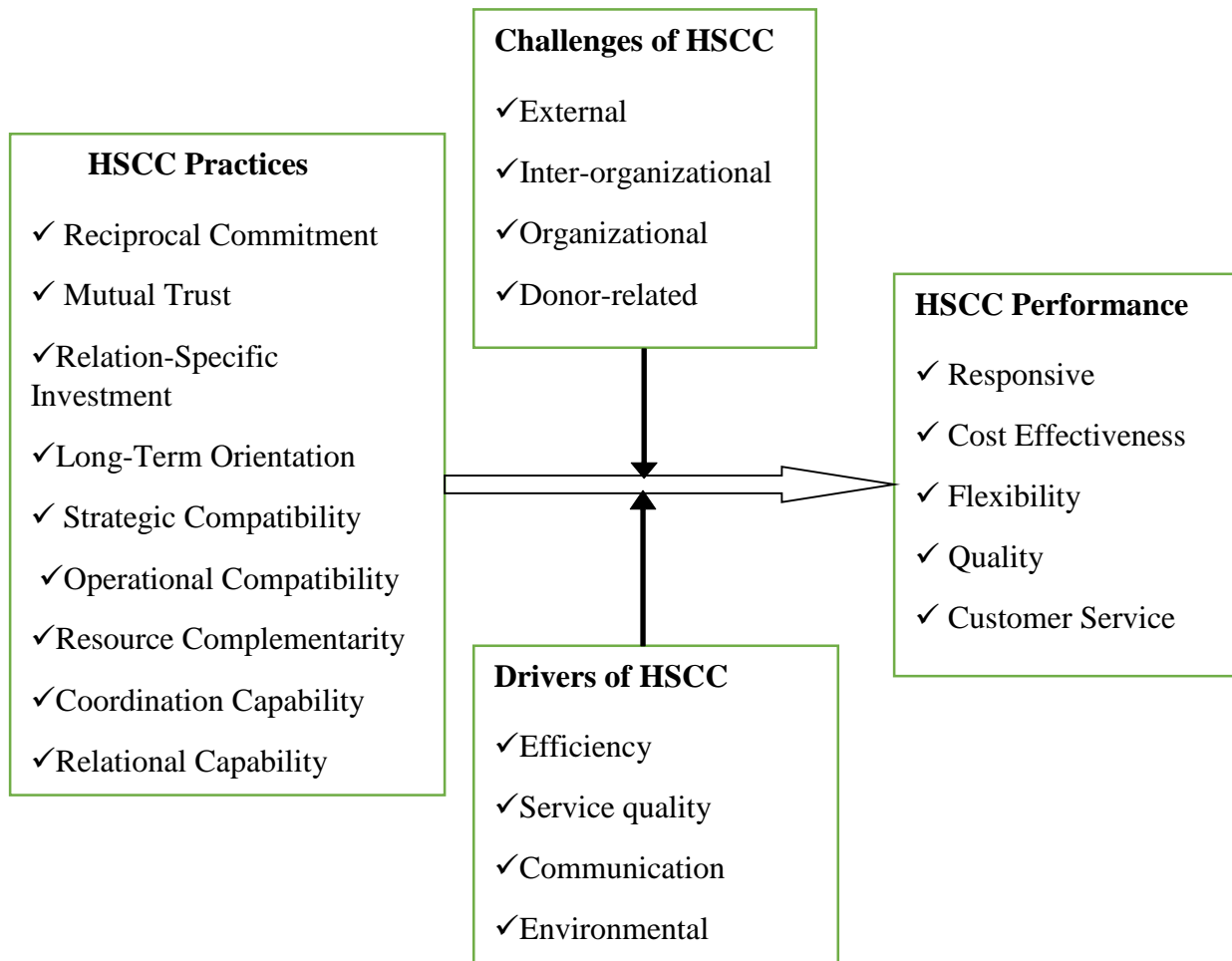


Figure 2-1 Conceptual Framework

Keys:

- ⇒ The variables have direct contribution and impact on the other variables
- The variables, if overcome, may not have significant impact or contribution on the other variables

## 2.5 Identified Literature Gaps

From the literature review, it is evident that scholars' attention has mostly been directed toward commercial supply chain collaborations within the commercial sector and not within

the humanitarian aid sector. Humanitarian organizations also need to integrate their supply chain management activities to deliver to the beneficiary within the required time and at the least possible cost to save more lives. The existing literature has majorly focused on supply chain challenges and drivers on the performance of humanitarian organizations without acknowledging the role it can play to enhance the performance of humanitarian organizations. Disaster supply chain collaboration, therefore, is one of the environments that need the performance of the humanitarian supply chain due to the high degree of uncertainty that must be dealt with as well as the complexities that result from high levels of stress and uncertainty. Therefore, this study has attempted to fill the gap in dyadic horizontal collaboration in the context of the humanitarian supply chain collaboration between NGOs without focusing on the commercial sector.

To overcome the collaboration risk, attain economies of scales, and improve the supply chains' agility, Schulz and Blecken (2010) cited the necessity of initiating partnerships between the humanitarian key actors to allow the exchanging of valuable resources such as information, money, abilities, products, and manpower. The studies have also majorly focused on supply chain management challenges and drivers facing humanitarian organizations in different countries without clearly providing adequate solutions to overcome this. The focus of studies has also been on establishing supply chain management practices being implemented by humanitarian organizations without focusing on humanitarian supply chain collaboration as a key factor in achieving supply chain performance. This creates a significant research gap on the role of humanitarian supply chain collaboration performance in NGOs in Ethiopia.

## CHAPTER Three: **RESEARCH METHODOLOGY**

This chapter of the study provides readers concise information on the data and data-related activities. The study area is described first followed by the research approach applied to gather information. The research design is also explained. The source, population samples, collection procedures of the research data, and the method used to analyze the data collected are discussed.

### **3.1 Description of the Study Area**

The study was conducted in the Eritrean refugee crisis in Ethiopia. International and local NGOs implementing their programs in five regional states such as Tigray and Afar (hosting Eritreans), Gambella (South Sudanese), Benishangul Gumuz (hosting mostly Sudanese, but also South Sudanese), and Somali (Somalis) and Addis Ababa city administration. The researcher selected the Tigray region at field offices in Mekelle, sub-office Shire, and refugee camps at Sheraro zone areas namely Adi Harush, Shimelba, Mai-Aini, and Hitstats, and Addis Ababa city administration. The reason for selecting the study area is that organizations are currently providing humanitarian and emergency responses to the affected people in the regions due to the recently occurred high influx of refugees and displaced people from Eritrea. Besides, most of the NGOs head office in Addis Ababa has also included in the study to get more information on the topic of the research.

### **3.2 Research Approach**

The research followed a qualitative research approach where concise statements specific to the research questions were incorporated into the questionnaire. Exploring and understanding collaboration requires a study of the partners' social settings alongside the internal structure, culture, and policies of each organization. Due to the need to study the influence of human interactions and beliefs on success or failure of collaborations, responses from respondents were collected through a five-point Likert scale to achieve the stated objectives. The respondents indicated their extent of agreement or disagreement using the scale. And in the second part, the study triangulates the interdependence between the dependent and independent variables using explanatory research approaches such as using multiple regression and correlation.

### **3.3 Research Design**

The nature of the research triggered the investigator to use both descriptive and explanatory types of research design. Accordingly, with the descriptive method, the study focused on how to build effective humanitarian supply chain collaborations between INGOs and LNGOs by exploring the elements that facilitate, motivate, promote, and constrain these collaborations and how variables were related in a particular context. And with the explanatory research design because there was sufficient context related to the chosen topic. Therefore, questionnaires were designed for the goal of exploring the unknown. The research time frame was cross-sectional since a specific event in a specific time was covered. Once the data was collected through the designed questionnaire, the result is presented using descriptive texts, frequency tables, and figures.

### **3.4 Source Population**

Project managers, country directors, logistics managers, operations officers, and supply chain professionals from head office and selected regional program area offices and Humanitarian relief distribution workers in emergency areas were the source population of the study.

### **3.5 Sampling Technique**

The study had used a multistage sampling technique. The reason behind using the technique is that the study included respondents from different department and positional level such as project managers, country directors, logistics managers, and operations officers and supply chain professionals from head office and selected regional program area offices and Humanitarian relief distribution workers in emergency areas as respondents.

### **3.6 Sample Size Determination**

The employees in international and local NGOs in the Eritrean refugee crises in Ethiopia who have directly responsible for the operations in the researcher's interest area had estimated to be 134 according to The website of the Office of the Coordinator for Humanitarian Affairs (OCHA) provides access to the contact information of international NGOs and through a list provided by the Ethiopian Ministry of Labour and Social Affairs. The organizations offer diverse programs food security, water & sanitation, camp

management, cash assistance, health, child protection, nutrition, education, shelter, protection, gender-based violence, core relief items and registration, community service, coordination. In this sample, most of the selected NGOs have recognized for their strong logistics capacities and with long experiences in building capacities; since delivering aid successfully requires an effective supply chain network. To make the sample size representative and convenient, a total of 100 respondents drawn from Addis Ababa the country office staffs, and Tigray region field offices in Mekelle, sub-office Shire and Sheraro zone staffs area offices and humanitarian relief distribution workers from the emergency sites have used as a sample for this study. Therefore, the sample size has determined with the sample size determination formula,  $N/(1+Ne^2)$  Belcourt and Saks (2000). The formula is large enough to allow for precision and confidence in the general ability of the research. Based on the method formula for the calculation of sample size present as follow:

$$n = \frac{N}{1 + Ne^2}$$

Where  $n$  = sample size

$N$ = Total Number of population

$e$  = standard error used (0.5) or 95% confidence interval.

$$\begin{aligned} n &= \frac{134}{1 + 135(0.05 * 0.05)} \\ &= \frac{134}{1.335} = 100.37 \end{aligned}$$

Based on the above sampling size, nearly 100 sample respondents have presented in the study.

To proportionally distribute the samples among the strata, the formula below is implemented (Cochran, 1992) and (Israel, 1992).

$$N_h = \left(\frac{N_h}{N_s}\right) \text{ where: } n_h = \text{Sample size from each stratum}$$

$N_h$ = Total population from each stratum

$N_s$ = Total population of the sum of strata for the study

$n$ = Total sample size from the study population

Table 3-1 Distribution of Sample Size

<b>Respondent position</b>	<b>Zones/Cities</b>	<b>No. of employees</b>	<b>Sample size</b>
Project managers	Addis Ababa	14	
			10
	Mekelle	2	2
	shire	24	18
country directors	Addis Ababa	4	3
	Mekelle	0	0
	Shire	0	0
logistics managers	Addis Ababa	12	9
	Mekelle	6	5
	Shire	4	3
operations officers & others	Addis Ababa	18	13
	Mekelle	20	15
	Shire	30	22
<b>Total</b>		<b>134</b>	<b>100</b>

Source: human resource departments of OCHA (2019)

### 3.7 Sources and Instruments of Data Collection methods

The researcher had used both primary and secondary data. The primary data was collected through a questionnaire. The questionnaires targeted project managers, country directors, logistics managers and operations officers, and supply chain professionals from head office and selected regional program area offices and Humanitarian relief distribution workers in emergency areas. Furthermore, the study also collected secondary data to enrich the study from different sources, such as articles, journals, documents of the organization, and books used as sources of secondary data sources. The questionnaire had had five parts: Part A focuses on the general particulars of the organization, Part B on the socio-

demographic characteristics of respondents. The rest three parts focus on questions related to the practices, challenges, drivers, and performances of Humanitarian supply chain collaboration management of international and local NGOs. This part has allowed each respondent to reflect in detail how they perceive practices, challenges, drivers, and performance of Humanitarian supply chain collaboration management of international and local NGOs. The respondents also had an opportunity to outline other factors outside the researcher 's scope concerning humanitarian supply chain collaboration management.

### 3.8 Reliability Test of the Instrument

In this study, the researcher used Cronbach's Alpha to test the reliability of the independent and dependent variables, A Cronbach's alpha coefficient greater than 0.9 implies excellent, greater than 0.8 is good, greater than 0.7 is acceptable, greater than 0.6 is questionable, greater than 0.5 is poor, and less than 0.5 is unacceptable (Tavakol *et al.*, 2011). Based on the principle in order to establish the degree of reliability, consistency, and accuracy of the instrument, a pilot study was conducted and presented in the following table.

Table 3-2 Reliability Test of the Study

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
HSCC_Practices	7.2049	1.311	.978	.978	.863
HSCC_Challenges	5.8424	2.381	.865	.778	.949
HSCC_Drivers	7.6734	1.850	.832	.845	.906
HSCC_Performance	6.1181	1.468	.935	.970	.871

Source Questioner, 2020 and opinion analyzed using SPSS version 26.

The more results prove consistent over time and reflect accurate representations of the total populations under study, the more scientifically reliable they are. The lowest alpha value was 0.863 and it was in the case of humanitarian supply chain collaboration practices, whereas the highest was for challenges with the alpha value of 0.949. For more alpha values of each dependent and independent variable see appendix A.

### **3.9 Validity Test**

Validity determines whether the research truly measures what it intends to measure, or how truthful the research results are (Schindler, 2003). The researcher took different steps to ensure the validity of the study. Accordingly, before the administration of the instrument for the subject, survey questionnaires were made based on the literature review and frame of reference to ensure the validity of results. And then, the questionnaire has been pre-tested by experts from Logistics and Supply Chain Management and suggestions of the advisor to see the content and construct validity. Following the expert's recommendation, the modified draft questionnaire was developed and distributed to the target respondents.

### **3.10 Data Analysis**

Before data analysis, the data obtained through questionnaires were first edited for their completeness, categorized, registered. The findings have presented in tables and analyzed through percentages, mean scores standard deviations. Descriptive statistics and inferential statistical analysis techniques used to analyze data. On the other hand, inferential statistics techniques, specifically correlation and regression analyses were applied to verify the direction of relationships and significance; and Analysis of Variance (ANOVA) was used to spot the difference between the dependent variable and the independent variables. An SPSS program was used to support the data analysis for interpretation. These data measures assisted the study greatly to analyze the most influential determinants of the practice, challenges, drivers, and performance of Humanitarian supply chain collaboration international and local NGOs. The descriptive statistics had presented using frequency tables and cross-tabulated results. Finally, Statistical packages for social science (SPSS) version 26.0 software was used to support the data analysis for interpretation.

### **3.11 Research Ethics**

During the study period, the researcher maintained the highest standards of research ethics and good academic behavior to ensure that the study is credible. More specifically, honesty & integrity and expert-reviewer.

## CHAPTER Four: RESULTS AND DISCUSSION

This chapter presents the analysis of study findings on the practices, drivers, challenges, and performance of humanitarian supply chain collaboration management of international and local NGOs in the Eritrean Refugee Crises in Ethiopia. The findings are analyzed using the variables related to the research objective and presented basically in the form of frequency tables, correlation and regression analysis on the scale typed questionnaire. Out of the 100 questionnaires distributed to respondents, only 85 questionnaires were collected. However, responses from 5 respondents were discarded because of failure to meet the characteristics of target respondents (i.e. respondent is not knowledgeable of his organization's collaboration efforts) or a substantial amount of missing data. Therefore, a total of 80 respondents that are working for and collaborating with the Eritrean refugee crisis in Ethiopia have participated in this study resulting in an effective response rate of 80 percent.

### 4.1 Results, Discussion and Interpretation

#### 4.1.1 Socio Demographic Characteristics of Respondents

The respondents are found to be aged from 25 to 60 years. As seen in the table below, more than quite a bit half of the respondents (67%) belong to the age group between 30 and 50 while few (8) are aged between 25 and 29. The gender composition of the respondents showed that the majority, 68 (85%) are males and 12 (15%) are females. Most of the respondents, 56 (70%) have a bachelor's degree, 14 (17%) of respondents hold a master's degree and the remaining 10 (13%) have a diploma. The respondents belong to different units at different levels in the organizational structure that are coordinated to provide the humanitarian supply chain collaboration service in the affected area. Most of the respondents, 25%, are distribution workers, 10% are from the senior management category and around 13% of the respondents belong to the procurement and logistics team at different levels. Regarding their years of experience in the organization, the majority, 38 (48%), served less than 5 years. Moreover, 26 (33%) respondents have between 6-10 years of experience while there are 14 respondents have between 11-15 years. The table below indicates the number and percentage distribution of the respondents to their respective units in international and local NGOs in the Eritrean refugee crisis in Ethiopia.

Table 4-1 Demographic Characteristics of Respondents

Characteristics	Category	Frequency	Percentage
<b>Age group</b>	25 - 29	8	10%
	30 - 39	29	36%
	40 - 50	25	31%
	Above 50	18	23%
<b>Gender</b>	Male	68	85%
	Female	12	15%
<b>Educational Level</b>	Below Diploma	0	0%
	Diploma	10	13%
	First Degree	56	70%
	Master's Degree and Above	14	17%
<b>Position in the organization</b>	Senior Management officials	8	10 %
	Project manager	4	5%
	Procurement and Logistics Manager	6	7%
	Procurement and Logistics officers	5	6%
	Warehouse Coordinators	4	5%
	Transport Officers	3	4%
	Finance Officers	4	5%
	Country Director	3	4%
	Monitoring and Evaluation Officers	3	4%
	Project Officers	6	7%
	Distribution Coordinators	6	7%
	Distribution Workers	20	25%
	HR Officers	8	11%
<b>Years of service in the organization</b>	Less than 5	38	48%
	6 - 10	26	33%
	11 - 15	14	17%
	16 - 20	1	1%
	Above 20	1	1%

Source: Questioner, 2020

#### 4.1.2 Humanitarian Supply Chain Collaboration Practices in International and Local NGOs in the Eritrean Refugee Crisis in Ethiopia

Descriptive statistics were assessed in an effort to examine the mean scores and the corresponding standard deviations under the respective scales of both the dimensions of the independent variable, mutual trust, reciprocal commitment, relationship-specific investment, strategic compatibility, operational compatibility, resource complementarity, coordination

capability, and relational capability and the dependent variable, namely humanitarian supply chain collaboration performances in international and local NGOs in the Eritrean refugee crisis in Ethiopia. Therefore, this endeavor has the merit of answering some of the research questions based on the perceptions of the respondents on the level of humanitarian supply chain collaboration practices in international and local NGOs in the Eritrean refugee crisis in Ethiopia.

Table 4-2 Humanitarian Supply Chain Collaboration Practices (N=80)

<b>Dimensions/Scale</b>	<b>Mean</b>	<b>Std. Dev.</b>
Mutual Trust	1.50	.50
Reciprocal Commitment	1.40	.49
Relationship Specific Investment	1.36	.48
Long-Term Orientation	1.73	.91
Strategic Compatibility	1.71	.74
Operational Compatibility	2.09	1.03
Resource Complementarities	1.66	.77
Coordination Capability	2.21	1.16
Relational Capability	2.00	1.13
Grand mean Humanitarian Supply Chain Collaboration Practices	1.7	0.8

Source: Questioner, 2020

There were nine identified practices of humanitarian supply chain collaboration studied in the international and local NGOs in the Eritrean refugee crisis in Ethiopia. The mean scores of mutual trust, reciprocal commitment, and relationship-specific investment practices on the partners' capabilities are very well as to make the effort succeed. This implies that most of the respondents agreed while some strongly that the organization assesses the mutual trust, reciprocal commitment, and relationship-specific investment very well before providing any humanitarian assistance to the affected area in terms of trustworthiness, desire and motivation of the partners to preserve and perpetuate the relationship to develop their relationships and investment associated with the efficiency or effectiveness of the relationship (i.e. lower delivery costs, improved service quality). As the analysis suggests, reciprocal commitment, relationship-specific investment, and mutual trust are positively associated with humanitarian supply chain collaborative performance (H1, H2, and H3). Palmatier *et al.* (2007), Morgan and Hunt (1994), and Sarkar *et al.* (2001) demonstrated that in dynamic situations, commitment, relationship-specific investment, and mutual trust directly affect inter-organizational humanitarian supply chain collaborative performance.

The grand mean value for resource complementarity, strategic compatibility, and long-term orientation which revealed most of the respondents perceived that practiced well. The data confirms positive relationships humanitarian supply chain collaborative performance with resource complementarity(H6), strategic compatibility(H5), and long-term orientation(H4). The results suggest that when partners have long-term goals and missions and are willing to sacrifice short-run results for long-term, sustainable outcomes, the possibility of opportunistic behaviors is lower and partners trust each other more; similarities or dissimilarities between organizations' cultures, missions, and objectives significantly lead organizations to raise their humanitarian supply chain collaborative performance; shared complementarity of resources provides each partner with a valuable pool of resources to reach goals which may not have been possible independently (Dyer and Singh, 1998; Lambe *et al.*, 2002; Sarkar *et al.*, 2001; Moshtari, M. 2013).

The grand mean value for operational compatibility, relational and coordination capability on the other hand was perceived to be practiced well. The results suggest that the relationships among humanitarian supply chain collaborative performance operational compatibility (H7), relational(H8) and coordination(H9) capability also are significant. These results suggest that the level of compatibility between organizations' procedures or technical capabilities has a significant effect on the level of humanitarian supply chain collaborative performance between partners. In other words, operational similarities may raise the competition among NGOs and encourage them to keep their operational advantages to themselves in order to be more successful (Anderson and Weitz, 1992; Cao and Zhang, 2011; Kumar *et al.*, 1992; Lambe *et al.*, 2002; Morgan and Hunt, 1994; Schreiner *et al.*, 2009; Moshtari, M. 2013).In general, among the collaboration practices, relationship-specific investment, reciprocal commitment, and mutual trust were perceived to be performed better compared to the other practice indicators respectively.

#### **4.1.3 Humanitarian Supply Chain Collaboration Challenges in International and Local NGOs in the Eritrean Refugee Crisis in Ethiopia**

The research results as computed by an SPSS application for the Humanitarian Supply Chain Collaboration Challenges of the international and local NGOs in the Eritrean refugee crisis in Ethiopia, the independent variable, external challenges, inter-organizational challenges, organizational challenges and donors related challenge that the international and

local NGOs faces and the dependent variable, namely humanitarian supply chain collaboration performances in international and local NGOs in the Eritrean refugee crisis in Ethiopia. Therefore, this endeavor has the merit of answering some of the research questions based on the perceptions of the respondents on the level of humanitarian supply chain collaboration practices in international and local NGOs in the Eritrean refugee crisis in Ethiopia.

Table 4-3 Humanitarian Supply Chain Collaboration Challenges (N=80)

<b>Dimensions/Scale</b>	<b>Mean</b>	<b>Std. Dev.</b>
External challenges	3.74	1.50
Inter-organizational challenges	2.63	1.33
Organizational challenges	2.91	1.58
Donors-related	2.91	1.54
Grand mean Humanitarian Supply Chain Collaboration Challenges	3.05	1.5

Source: Questioner, 2020

According to the analysis humanitarian supply chain collaboration challenges are perceived differently by different groups of respondents. However, the inter-organizational challenge with a grand mean of 2.63 is found to be perceived as the most serious challenge. The restrictive political environment and logistical complications of the host countries, Inadequate number of qualified NGOs and its negative impact on the effectiveness and efficiency of the humanitarian work, on the other hand, was criticized by both the research respondents and the study by Balcik *et al.*, (2010) and Sommers and Watson Jr. (2000). This shows external challenges negatively and significantly affects the humanitarian supply chain collaborative performance of the Eritrean refugee crisis in Ethiopian.

The absence of mutuality, at both strategic and operational levels, in terms of objectives, missions, policies, timeframes, and techniques led to distrust and misunderstanding among humanitarian partners and poor communication among NGOs, thus less collaborative efforts, The power imbalance has also led to inauthentic partnerships that lack accountability over performance (Campbell & Hartnett, 2005; Balcik *et al.*, 2010; Steets *et al.*, 2010; Dolinskaya *et al.*, 2011; Akhtar *et al.*, 2012; Svoboda & Pantuliano, 2015). This indicated like the respondents Therefore, inter-organizational challenges negatively and significantly affect the humanitarian supply chain collaborative performance of the Eritrean refugee crisis in Ethiopian.

NGOs believe that partnerships increase bureaucracy which in turn decreases timely response to the vulnerable people's needs. They also believe that partnerships threaten their independence, identity, missions, and values (Steets *et al.*, 2010. Campbell & Hartnett, 2005; Houghton, 2011; Akhtar *et al.*, 2012). Furthermore, the stability of partnerships has been endangered by high staff turnover and by the employment of new and inexperienced humanitarian leaders, who do not have adequate knowledge to manage them effectively (Rawal *et al.*, 2005; Stoddard *et al.*, 2007; Dolinskaya *et al.*, 2011; Tchouakeu *et al.*, 2011; Oliveira, 2015; ICRC, 2017) and most of the respondent agreed. Therefore, organizational challenges negatively and significantly affect the humanitarian supply chain collaborative performance of the Eritrean refugee crisis in Ethiopian.

The challenges related to donors have appeared strongly in the collected data. The majority of respondent complained about the limited funding that generates competitions over the insufficient resources and the pre-designed projects that are imposed by donors, and that prevent their organizations from creating effective partnerships. This concern is also noted in the literature (Balcik *et al.*, 2010; Stephenson Jr & Schnitzer, 2006). Therefore, donors-related challenges negatively and significantly affect the humanitarian supply chain collaborative performance of the Eritrean refugee crisis in Ethiopian.

#### **4.1.4 Humanitarian Supply Chain Collaboration Drivers in International and Local NGOs in the Eritrean Refugee Crisis in Ethiopia**

The research results as computed by an SPSS application for the humanitarian supply chain collaboration drivers in international and local NGOs in the Eritrean refugee crisis in Ethiopia, the independent variable efficiency, service quality, Communication, and environmental drivers that international and local NGOs motivates and the dependent variable, namely humanitarian supply chain collaboration performances in international and local NGOs in the Eritrean refugee crisis in Ethiopia. Therefore, this endeavor has the merit of answering some of the research questions based on the perceptions of the respondents on the level of humanitarian supply chain collaboration practices in international and local NGOs in the Eritrean refugee crisis in Ethiopia.

Table 4-4 Humanitarian Supply Chain Collaboration Drivers (N=80)

Dimensions/Scale	Mean	Std. Dev.
------------------	------	-----------

Efficiency	1.15	0.35
Service quality	1.20	0.40
Communication	1.37	0.63
Environmental	1.38	0.66
Grand Mean of Humanitarian Supply Chain Collaboration Drivers	1.3	0.5

Source: Questioner, 2020

According to the analysis humanitarian supply chain collaboration drivers are perceived differently by different groups of respondents. However, the efficiency driver with a grand mean of 1.15 is found to be perceived as the most serious driver.

Most of the respondent strongly agree on efficiency and cost efficiency, the similarity in causes, goals, or values and eliminate duplication NGOs derived to collaborate (Benedetti, 2006; Fleishman, 2008; Snavely and Tracy 2000). This shows efficiency positively and significantly affects the humanitarian supply chain collaboration performance of the Eritrean refugee crisis in Ethiopia.

Emerson *et al.*, (2012), Mitchell (2014), Scobie *et al.*, (2013), Sowa, (2009) demonstrated that service-effectiveness has been indicated as a common key motivation that enables the partnership between NGOs to deliver better services for more beneficiaries in a shorter lead-time.

Most local and international respondents also agree, and this confirms service quality positively and significantly affects the HSCC performance of the Eritrean refugee crisis in Ethiopia.

NGOs unite their voices to reinforce their position and to develop a focal point to facilitate the communication with governments and Political effects have been highlighted as one of the main reasons for collaboration among NGOs (Richards and Heard, 2005; UK Charities Commission, 2009; Incentivizing Collaboration Workshop, 2012). this demonstrates communication positively and significantly affect the HSCC performance of the Eritrean refugee crisis in Ethiopia.

Finally, NGOs also collaborate to maintain sustainability, security and the safety of their employees because of their reach and closeness to vulnerable people (Michael, 2002; INTRAC, 2001) and The majority of respondent mentioned that therefore environmental

positively and significantly affect the HSCC performance of Eritrean refugee crisis in Ethiopia.

#### 4.1.5 Humanitarian Supply Chain Collaboration Performances in International and Local NGOs in the Eritrean Refugee Crisis in Ethiopia

Five indicators were used to assess the Humanitarian Supply Chain Collaboration Performance of the international and local NGOs in the Eritrean refugee crisis in Ethiopia, responsiveness, cost-effectiveness, flexibility, quality, and customer service.

Table 4-5 Performance of Humanitarian supply chain collaboration (N=80)

Dimensions/Scale	Mean	Std. Dev.
Responsiveness	1.87	1.03
Cost Effectiveness	1.83	.56
Flexibility	4.01	.57
Quality	2.88	1.38
Customer Service	3.56	1.09
Grand mean of Performance of Humanitarian supply chain collaboration	2.83	0.92

Source: Questioner, 2020

The humanitarian supply chain collaboration performance was assessed using five indicators namely responsiveness, cost-effectiveness, flexibility, quality, and customer service. Based on the analyzed data cost-effectiveness was found to be ranked first with a mean result of 1.83 followed by responsiveness with a mean result of 1.87. Quality was ranked third with a mean result of 2.88 while customer service and flexibility were ranked fourth and fifth in the row with grand means of 3.56 and 4.01 respectively. The grand mean for flexibility is 4.0, which tells that respondents disagree to favor the indicator. The grand mean for customer service also shows a result closer to disagreement, much close to 4.0 and hence respondents perceive that the services provided by the organizations are a customer is not satisfied.

## 4.2 Correlation Analysis

Correlation is the relationship among variables by giving insight into the strength and direction of relationships. Two-tail Pearson correlation has been calculated to determine the relationship between humanitarian supply chain collaboration practice, challenges, and drivers and humanitarian supply chain collaboration performance. Pearson's correlation coefficient (r), which measures the strength and direction of a linear relationship between two

variables, is used. The values of Pearson's correlation coefficient are always between -1 and +1. A correlation coefficient of +1 indicates that two variables are perfectly related in a positive sense whereas a correlation coefficient of -1 indicates that two variables are perfectly related in a negative sense, and a correlation coefficient of 0 indicates that there is no linear relationship between the two variables. A low correlation coefficient; 0.1 - 0.29 suggests that the relationship between two items is weak or non-existent. If r is between 0.3 and 0.49 the relationship is moderate. A high correlation coefficient i.e.  $p > 0.5$  indicates a strong relationship between variables. The direction of the dependent variable's change depends on the sign of the coefficient. If the coefficient is a positive number then the dependent variable will move in the same direction as the independent variable, and if the coefficient is negative then the dependent variable will move in the opposite direction of the independent variable. Analysis of correlation shows that all relationships are strongly correlated it can be seen in Table 4-6.

The correlation between humanitarian supply chain collaboration practice and performance is 0.973\*\*, which means there is a strong and significant relationship between the two. Correlation with the challenges and performance is 0.873\*\* that also explains the strong and significant relationship. The value of correlation with the drivers is 0.779\*\* indicates a positive relationship among collaborators and this relationship is strong. This implies that a change made in one of the independent variables can change organization humanitarian supply chain performance. Thus, from this result confirmed that all independent variables perfectly related in a positive sense with dependent variables i.e. the organization's humanitarian supply chain performance. Hence any improvement in one of the dimensions will positively contribute in enhancing the organization's effectiveness. Correlations for all independent and dependent variables shown on the web format.

Table 4-6 Correlation coefficient analysis (N=80)

		<b>HSCC Practices</b>	<b>HSCC Challenges</b>	<b>HSCC Drivers</b>	<b>HSCC Performance</b>
<b>HSCC Practices</b>	Pearson Correlation	1			
	Sig. (2-tailed)				
<b>HSCC Challenges</b>	Pearson Correlation	.856**	1		
	Sig. (2-tailed)	.000			
<b>HSCC Drivers</b>	Pearson Correlation	.868**	.749**	1	
	Sig. (2-tailed)	.000	.000		
<b>HSCC</b>	Pearson Correlation	.973**	.873**	.779**	1

<b>Performance</b>	Sig. (2-tailed)	.000	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).					

Source: Questioner, 2020

Furthermore, multiple regression analyses are first confirmed by testing the assumptions of normality, linearity, homoscedasticity, and independence of residuals, revealing that the residuals are normally distributed. Therefore, this was no normality assumption problem for this study. This is shown in Appendix A and B, there was no homoscedasticity problem for this study and, as shown in appendix C, there was no linearity problem for this study.

### 4.3 Regression analysis

Multiple regression analysis allows for determining the degree of strength and the direction of the linear relationship among research variables (Shukla, 2016). Regression analysis in Table 4-7 indicates the relationship among independent and dependent variable.

Table 4-7 Regression analysis result Source: Questioner, 2020

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error	Change Statistics					Durbin-Watson
					R <sup>2</sup> Change	F Change	df1	df2	Sig. F Change	
1	.985 <sup>a</sup>	.970	.969	.098155	.970	823.339	3	76	.000	.547

a. Predictors: (Constant), HSCC\_Drivers, HSCC\_Challenges, HSCC\_Practices

b. Dependent Variable: HSCC\_Performance

Source: Questioner, 2020

### Analysis of Variance (ANOVA)

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.797	3	7.932	823.339	.000 <sup>b</sup>
	Residual	.732	76	.010		
	Total	24.529	79			

a. Predictors: (Constant), HSCC\_Drivers, HSCC\_Challenges, HSCC\_Practices

b. Dependent Variable: HSCC\_Performance

Source: Questioner, 2020

Coefficients <sup>a</sup>										
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% CI for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.363	.242		1.502	.137	-.118	.845		
	HSCC_Practices	.983	.047	1.072	20.981	.000	.890	1.076	.150	6.650
	HSCC_Challenges	.382	.094	.156	4.056	.000	.194	.569	.267	3.743
	HSCC_Drivers	-.339	.050	-.268	-6.727	.000	-.439	-.239	.247	4.045

a. Dependent Variable: HSCC\_Performance

Source: Questioner, 2020

The ANOVA table indicates that the overall model was in a good fit with statistical (F – value = 823.339 or higher if the hypothesis is true) since the probability is so low, the researcher should reject the null hypothesis and concluded that these humanitarian supply chain collaborations performance means are probably not all the same.

In a multiple linear regression analysis of such sort, unstandardized coefficients Beta test shows the acceptability of the model from a statistical perspective. Accordingly, the regression row indicates the extent of variation explained by the model, i.e. variation on the dependent variable explained by factors included in the model. finally, humanitarian supply chain collaboration practices and challenges have high statistical significance, while the drivers are not at all statistically significant.

The Adjusted R Square value on the model summary table is a representation of the correlation between the observed values of the dependent variable and the values of the same dependent variable predicted by the multiple regression models. Hence, it suggested that the larger value of the Adjusted R Square represents a large correlation between the predicted and observed values of the dependent variable (Shukla, 2016). As clearly presented on the model summary, the value for Adjusted R Square is 0.969 suggesting that 96.90% of the variation in the dependent variable (humanitarian supply chain collaboration performance) is explained by the model, i.e., by the combined variance in the dimensions of the independent variable. The remaining 3.10% of the variation on the dependent variable is, therefore, explained by factors not incorporated in the model.

If the researcher converts the information in the coefficients table to standard algebraic form (but leaving out the error terms) researcher get, for the unstandardized equation:

$$\hat{Y} = .363 - .983 * X_1 - .382 * X_2 + .339 * X_3$$

Where  $X_1$  = HSCC-Practices,  $X_2$  = HSCC-Challenges,  $X_3$  = HSCC-Drivers

The standardized equation looks like:

$$\hat{Y} = 1.072 * X_1 - .156 * X_2 + .268 * X_3$$

#### 4.3.1 Multiple regression Practices analysis result

Table 4-8 Multiple Regression Analysis Practices, Model Summary, Anova and Coefficients: Regression (Practices -vs-HCCS\_Performances) Source: Questioner, 2020

Regression (Practices-vs-HCCS\_Performances)

Model Summary <sup>b</sup>										
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate	Change Statistics					Durbin - Watson
					R <sup>2</sup> Change	F Change	df1	df2	Sig. F Change	
1	.993 <sup>a</sup>	.986	.984	.070597	.986	485.268	10	69	.000	.925
a. Predictors: (Constant), Mutual Trust, Relational Capability, Relationship Specific Invest, Resource Complementarity, Operational Compatibility, Long-Term Orientation, Reciprocal Commitment, Strategic Compatibility, Coordination Capability										
b. Dependent Variable: HSCC_Performance										

Regression (Practices-vs-HCCS\_Performances)

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.185	10	2.419	485.268	.000 <sup>b</sup>
	Residual	.344	69	.005		
	Total	24.529	79			
a. Dependent Variable: HSCC_Performance						
b. Predictors: (Constant), Mutual Trust, Relational Capability, Relationship Specific Invest, Resource Complementarity, Operational Compatibility, Long-Term Orientation, Reciprocal Commitment, Strategic Compatibility, Coordination Capability						

Regression (Practices-vs-HCCS\_Performances)

Coefficients <sup>a</sup>										
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% CI for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.432	.100		14.258	.000	1.232	1.632		
	Mutual Trust	.210	.078	.134	2.688	.009	.054	.366	.082	12.208
	Reciprocal Commitment	-.247	.155	-.158	-1.593	.116	-.555	.062	.021	48.222
	Relationship Specific Invest	-.411	.094	-.282	-4.387	.000	-.597	-.224	.049	20.402
	Long-Term Orientation	-.026	.093	-.033	-.278	.782	-.211	.159	.015	67.931
	Strategic Compatibility	.087	.094	.096	.921	.360	-.101	.275	.019	53.255
	Operational Compatibility	.247	.058	.379	4.269	.000	.132	.363	.026	38.721
	Coordination Capability	-.085	.117	-.129	-.726	.470	-.319	.149	.006	155.758
	Resource Complementarity	.189	.093	.212	2.023	.047	.003	.375	.018	54.115
	Relational Capability	.568	.081	.697	7.049	.000	.407	.729	.021	48.134
a. Dependent Variable: HSCC_Performance										

As shown in the above model summary table, the adjusted R square is 0.984. This suggests that about 98% of the variation in the model is explained by the variables already incorporated into the model. Therefore, in this case 0.984 R Square value revealed that about

98% of the variation in the humanitarian supply chain performance explained by the variables existed in the model. This further shows that only 2% of the variation in the dependent variable is to be determined by the variables outside of this model.

As the value of R squared shows, in aggregate the dependent variable (humanitarian supply chain performance) is explained (impacted) by all independent variables (i.e. long-term orientation, reciprocal commitment, strategic compatibility, coordination capability, and resource complementarity) by 98.60 percent which shows the evaluation of the model. This R square is not overestimated while evaluating the model's fitness as its variation from the adjusted R square is not high.

The ANOVA table indicates that the overall model was in a good fit with statistical ( $F$  – value = 4 85.268 or higher if the hypothesis is true) since the probability is so low, the researcher should reject the null hypothesis and concluded that these humanitarian supply chain collaborations performance means are probably not all the same.

From their beta values, nine independent variables are relatively relevant in measuring the dependent variable - humanitarian supply chain performance. The remaining statistically insignificant variables (i.e. long-term orientation, reciprocal commitment, relationship-specific investment, and coordination capability) are statistically failed to explain humanitarian supply chain performance due to their scored p-value out of the acceptable range while remaining highly statistically significant variables. The relational capability has the biggest impact on the value of  $\beta = 0.697$  on humanitarian supply chain performance, while relationship-specific investment has the lowest insignificant impact with value  $\beta = -2.82$ .

When evaluating each independent variable impact on the dependent variable (humanitarian supply chain performance), from their B values, the mutual trust, operational compatibility, strategic compatibility, relational capability, and resource complementarity have a positive coefficient. The results are in the hypothesized direction. However, coordination capability, relationship-specific investment, long term orientation, and reciprocal commitment are contributing negatively, and thus, the results are in the opposite direction than the researcher had hypothesized to humanitarian supply chain performance.

### 4.3.2 Multiple regression Challenges analysis result

Table 4-9 Multiple Regression Analysis Challenges, Model Summary, Anova and Coefficients: Regression (Challenges -vs-HCCS\_Performances) Source: Questioner, 2020

Regression (Challenges-vs-HCCS\_Performances)

Model Summary <sup>b</sup>										
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R <sup>2</sup> Change	F Change	df1	df2	Sig. F Change	
1	.993 <sup>a</sup>	.986	.985	.067681	.986	131.955	4	75	.000	.458

a. Predictors: (Constant), Donors-related, Inter-organizational challenges, External challenges, Organizational challenges  
b. Dependent Variable: HSCC\_Performanc

Regression (Challenges-vs-HCCS\_Performances)

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.186	4	6.046	131.955	.000 <sup>b</sup>
	Residual	.344	75	.005		
	Total	24.529	79			

a. Dependent Variable: HSCC\_Performance  
b. Predictors: (Constant), Donors-related, Inter-organizational challenges, External challenges, Organizational challenges

Regression (Challenges-vs-HCCS\_Performances)

Coefficients <sup>a</sup>										
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% CI for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.112	.185		6.022	.000	.744	1.480		
	External challenges	-.044	.029	-.022	-1.540	.128	-.102	.013	.945	1.058
	Inter-organizational challenges	.714	.010	.995	69.800	.000	.693	.734	.918	1.089
	Organizational challenges	-.012	.038	-.005	-.322	.748	-.088	.063	.933	1.072
	Donors-related	.011	.026	.006	.411	.682	-.041	.062	.969	1.032

a. Dependent Variable: HSCC\_Performance

As shown in the above model summary table, the adjusted R Square is 0.985. This suggests that about 98% of the variation in the model is explained by the variables already incorporated into the model. Therefore, in this case, the R square value revealed that about 98% of the variation in the humanitarian supply chain performance explained by the variables existed in the model. This further shows that only 2% of the variation in the dependent

variable is to be determined by the variables outside of this model. As the value of R squared shows, in aggregate the dependent variable (humanitarian supply chain performance) is explained (impacted) by all independent variables (i.e. donors-related, external challenges, organizational challenges, and inter-organizational challenges) by 98.60 percent which shows the evaluation of the model. This R square is not overestimated while evaluating the model's fitness as its variation from the adjusted R square is not high.

The ANOVA table indicates that the overall model was in a good fit with statistical (F – value =131.955 or higher if the hypothesis is true) since the probability is so low, the researcher should reject the null hypothesis and concluded that these humanitarian supply chain collaborations performance means are probably not all the same.

Although the model fitness is confirmed as presented in the coefficients table of B value, as far as the coefficient table is concerned only inter-organizational challenges the overall performance of the humanitarian supply chain will increase, the result is in the hypothesized direction. Nevertheless, the remaining three independent variables (i.e. external, organizational, and donor-related challenges) are in the opposite direction than the researcher had hypothesized. Looking at individual members of humanitarian supply chain challenges, inter-organizational challenges have a significant effect on the dependent variables. This does not mean that the other insignificant variables do not affect.

From their beta values, these four independent variables are relatively important in measuring the dependent variable. The table shows the evaluation of each independent variable's impact on the dependent variable. Inter-organizational challenges have a positive coefficient and are highly statistically significant to humanitarian supply chain performance. The remaining are not at all statistically significant variables (i.e. donors-related, external challenges, and organizational challenges) are statistically failed to explain the dependent variable humanitarian supply chain performance as their scored p-value out of the acceptable range. Concerning the measuring power of the one statistically significant variable, the coefficient table revealed inter-organizational challenges have the highest predicting standardized coefficient of 0. 995. Organizational challenge has the lowest insignificant impact with value  $\beta = -0.005$ .

### 4.3.3 Multiple regression Drivers analysis result

Table 4-10 Multiple Regression Analysis Drivers, Model Summary, Anova and Coefficients: Regression (Drivers -vs-HCCS\_Performances) Source: Questioner, 2020

Regression (Drivers-vs-HCCS\_Performances)

Model Summary <sup>b</sup>										
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R <sup>2</sup> Change	F Change	df1	df2	Sig. F Change	
1	.840 <sup>a</sup>	.706	.690	.310259	.706	44.955	4	75	.000	.083

a. Predictors: (Constant), Environmental, Efficiency, Service quality, Communication

b. Dependent Variable: HSCC\_Performance

Regression (Drivers-vs-HCCS\_Performances)

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.310	4	4.327	44.955	.000 <sup>b</sup>
	Residual	7.220	75	.096		
	Total	24.529	79			

a. Dependent Variable: HSCC\_Performance

b. Predictors: (Constant), Environmental, Efficiency, Service quality, Communication

Regression (Drivers-vs-HCCS\_Performances)

Coefficients <sup>a</sup>										
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% CI for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.982	.218		9.093	.000	1.548	2.416		
	Efficiency	-.511	.401	-.303	-1.272	.207	-1.310	.289	.069	14.444
	Service quality	-.217	.273	-.151	-.795	.429	-.760	.326	.109	9.204
	Communication	.568	.352	.534	1.612	.111	-.134	1.270	.036	27.950
	Environmental	.664	.439	.697	1.513	.135	-.210	1.538	.018	54.121

a. Dependent Variable: HSCC\_Performance

As shown in the above model summary table, the adjusted R square is 0.690 suggesting about 69% of the variation in the model is explained by the variables already incorporated into the model. Therefore, in case, R square value revealed that about 69% of the variation in the humanitarian supply chain performance explained by the variables existed in the model. This further reveals only 31% of the variation in the dependent variable is to be determined by the variables outside of the model. Besides, the R squared shows in aggregate the

dependent variable (humanitarian supply chain performance) is explained (impacted) by all independent variables (i.e. environmental, efficiency, service quality, communication) by 70.60 percent which shows the evaluation of the model. The R square is not overestimated while evaluating the model's fitness as its variation from the adjusted R square is not high.

The ANOVA table indicates that the overall model was in a good fit with statistical (F-value = 44.955 or higher if the hypothesis is true). Since the probability is so low, the researcher rejected the null hypothesis and concluded that these humanitarian supply chain collaborations performance means are probably not all the same.

From their beta values, these no independent variables are relatively important in measuring the dependent variable - humanitarian supply chain performance. All are highly statistically significant variables (i.e. environmental and communication) except (i.e. efficiency and service quality) that failed to explain the dependent variable as their scored p-value out of the acceptable range ( $p < 0.05$ ). Environmental has the biggest impact, with the value of  $\beta = 0.697$ , on humanitarian supply chain performance. Efficiency has the lowest insignificant impact with value  $\beta = -0.303$ .

Looking in the coefficients table of B value, individual members of humanitarian supply chain drivers, i.e., Environmental, Efficiency, Service quality, Communication, the overall performance of the humanitarian supply chain will increase. The table shows that environmental and communication in which results are in the opposite direction than the researcher hypothesized but the efficiency and service quality are in the hypothesized direction.

## CHAPTER Five: CONCLUSION AND RECOMMENDATION

This chapter presents a summary of the findings of humanitarian supply chain collaboration practices, drivers, challenges, and performance of the local and international NGOs in the Eritrean refugee crisis in Ethiopia. The aim of the study was to evaluate the practices, drivers, challenges, and performances of the Humanitarian supply chain collaboration of local and international NGOs. The chapter also presents the conclusions made from the findings and the recommendations of the researcher based on the findings as well as suggestions for further research.

### 5.1 Summary of Findings

The major findings of the study revealed that there are various humanitarian supply chain collaboration practices that are followed in local and international NGOs in the Eritrean refugee crisis in Ethiopia. Conducting good mutual trust, commitment, and relation specific investments in affected areas before providing aid to beneficiaries are mandatory practices and found to be well-performing. The humanitarian supply chain collaboration operations were also found to be effective and efficient which enable a better manage supply chain collaborative initiatives. However, challenges were perceived to be still a challenge compared to drivers. Overall performance of the humanitarian supply chain collaboration of the organizations were evaluated to be lower especially in terms of factors related to customer service and flexibility given the perceived performance index value greater than 3.

Finally, the findings of the study indicate that the independent variables, such as long-term orientation, mutual trust, relationship-specific investment, reciprocal commitment, strategic compatibility, operational compatibility, resource complementarity, coordination capability, relational capability, inter-organizational, organizational, external, donor-related, efficiency, service quality, communication, and environment, positively influence humanitarian supply chain collaborative performance (responsive, cost-effectiveness, flexibility, quality and customer service). The outcomes are reliable with extant supply chain management literature (Cao & Zhang, 2011; Oliveira and Gimeno, 2014).

## 5.2 Conclusion

The findings of the study confirmed that the humanitarian supply chain collaboration practices of the local and international NGOs in the Eritrean refugee crisis in Ethiopia.

- In terms of addressing building trustworthiness, keep the promises made, sincere in dealings, not deliberately take action that would negatively affect each other, not use confidential information to take advantage, and expect that conflicts would be resolved fairly were appropriate and positively associated with HSCC performance.
- Reciprocal commitment practices of local and international NGOs in the Eritrean refugee crisis in Ethiopia view the relationship as something they are very committed to, very important to them, intend to maintain indefinitely, as deserving their maximum efforts to maintain and willing to dedicate whatever people and resources to make it a success were appropriate and positively associated with HSCC performance.
- In relation to the relation-specific investment, the study also found that organizations have invested significant resources in improving personal relations between each other, developed procedures, routines, and understanding tailored to conducting joint tasks were appropriate and positively associated with HSCC performance.
- As resource complementarities local and international NGOs brought resources have been very valuable for the other, significant in getting the job done, separate abilities and have complementary strengths that are useful to the relationship still needs improvement and positively associated with HSCC performance.
- Strategic compatibility of share common goals and objectives, match organizations' philosophies, similar organizational culture, support each other's objectives, and having different goals still needs improvement and positively associated with HSCC performance.
- The study also found out that NGOs focus on long-term goals, plans, expect to work together for a long time, and willing to sacrifice long-term performance in

order to achieve short-term results in their relationship still needs improvement and positively associated with HSCC performance.

- Operational compatibility on similar professional skills, technical capabilities, and organizational procedures still needed improvement since incompatible partners can make inappropriate decisions and positively associated with HSCC performance.
- The finding of the study also revealed that coordination and relational capability used by NGOs on use consistent policies and decision-making procedures in this relationship, concerns, and feedback in their policies and programs, co-develop systems to evaluate and publicize each other's performance, incentive systems and listen attentively when the other explains problems, try to see the other's point of view, respect each other, effectively communicate expectations for each other's performance, view information sharing and transparent communication between the sides as key, have open and two-way communication and win-win situation of the collaboration to each other were not well established and positively associated with HSCC performance.

The findings of the study exposed that different challenges were faced by local and international NGOs in the Eritrean refugee crisis while executing humanitarian supply chain collaboration practices. Inter-organizational challenges such as poor communication, power imbalance, and absence of mutuality in terms of operations, and external challenges such as restrictive governmental authority and logistical complications, chaotic, and competitive, and the inadequate number of qualified NGOs. Donor-related challenges such as limited funding, pre-designed projects, and supply oriented instead of demand-oriented are among the strongest challenges that negatively and significantly affect the HSCC performance of the Eritrean refugee crisis.

The findings of the study revealed that different drivers were motivated by international and local NGOs in the Eritrean refugee crisis while executing humanitarian supply chain collaboration practices. To get reduce costs, to eliminate duplications, attracting more donors and enhancing reputation, sustainability, empowerment, and increase effectiveness and tackle complex problems were the strongest drivers that positively and significantly affect the

HSCC performance of Eritrean refugee crisis. It seems the organizations mostly drive-by efficiency based on the revealed result.

The performances of the local and international NGOs in the Eritrean refugee crisis in Ethiopia overall were also found to be moderately satisfactory. However, there are still problems related to different parameters of the performance measures. By looking at the performance measurement indicators, it is possible to deduce that local and international NGOs in the Eritrean refugee crisis in Ethiopia is more cost-effective towards humanitarian activities. Customer service in terms of information sharing and customer satisfaction. On the other hand, only 35% agreed the information-sharing made the organization enhance its customer service. Flexibility was also found to be less performed by the organizations whenever there are flexible demands. In terms of responsiveness and cost-effectiveness, the organizations are perceived to be well-performing as most responses from the respondents favored it. The other parameter of performance measures, quality, was revealed to have some defects in terms of sharing benefits.

### **5.3 Recommendations**

Even though the findings of the research in general revealed that local and international NGOs in the Eritrean refugee crisis in Ethiopia is operating well in this specific area during emergencies, there are still concerns that need to be taken into account and addressed for a better performance especially in relation to factors related to customer service and flexibility. Here, some suggestions are forwarded based on the findings of the study

- Both INGOs and LNGOs partners should communicate openly and exchange accurate information to enhance their position as reliable partners.
- Both INGOs and LNGOs partners should committed equally to preserve a valuable and coherent relationship and to increase their returns effectively.
- Both INGOs and LNGOs partners should have a mutual understanding of responsibilities to minimize the competition over resources.
- NGOs should synchronize their activities, thus allowing a cohesive and effective response.
- INGOs should not impose their desires when they possess resources this leads to led to donor-receipt relationships.

- INGOs should translate their management philosophies and compare it to their local partners' philosophies when working in a new culture following a flexible managerial mentality to overcome the incompatibility.
- INGOs should build capacities of local NGOs go beyond workshops and seminars, to strengthen technical, operational, and organizational dimensions and should include, human resources management, financial resources management, information systems, strategic leadership and public relations.
- INGOs should admitted that the contribution of local knowledge in addressing complex social issues to enhance the visibility and service quality.
- LNGOs should be flexible on bureaucracy issue that could result in work delay is what led to instable partnerships some INGOs stated that they have also been affected by the inflexibility of their local partners' systems that endangers the sustainability of partnerships.
- The issue of personnel turnovers was also represented as a challenge by the research respondents. NGOs should clarify that their missions are managed by guidelines that new staff find easy to follow.

The research also suggests that donors play a critical role in supporting the effectiveness of humanitarian supply chain collaborations. Thus, donors should review and modify their restrictive policies to allow partners to invest in enhancing their relationships and capacities. This can be achieved through offering funds over a longer period, and by stopping the imposition of predesigned guidelines that sometimes threaten the NGOs' goals and values.

The other significant problem related to the organization's performance is its flexibility to Information Sharing, Joint Planning and forecasting. There should always be a contingency plan to absorb such fluctuations even though the situations are usually unplanned which demand urgent humanitarian responses.

## **5.4 Future Research Recommendation**

This research was conducted in a single snapshot of the situation in Eritrea refugee crisis in Ethiopia during an extended humanitarian crisis where the scope is very limited.

Accordingly, it is advised for future researchers include similar organizations while perusing researches in similar areas of interest to get a better view of the practices, drivers, challenges and performances of humanitarian supply chain collaboration since repetition of the research including INGOs and LNGOs working in different regions may result in different outcomes. There is also a chance to explore collaborative efforts between other humanitarian actors, such as INGOs and government or INGOs and the private sector, thus further research into dyadic and network relationships is required. Moreover, future researchers can consider seeing interdependencies among the variables mentioned.

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## APPENDIX-I



### ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE MA PROGRAM

#### A. Questionnaire

Dear Respondent,

I am a graduate student at Addis Ababa University and pursuing a degree of Masters of Arts in Logistics and Supply Chain Management. As part of this course requirement, I am expected to carry out a research on the humanitarian supply chain collaboration practices, challenges and performance of the Eritrean Refugee Crises in Ethiopia.

I therefore, humbly request your assistance and cooperation in responding to the questions attached herewith. The information given will be treated with utmost confidentiality and will be used only for the purpose of this study.

Looking forward for your response and cooperation.

Respectfully,

Asmerom Weldezigina

#### **Please Note:**

If you need further explanation, please contact me and discuss the matter freely at (Telephone No. 0911 016103, E-mail [asmerom1001@yahoo.com](mailto:asmerom1001@yahoo.com))

**Part A: General Information of the Organization/Project**

- a. Name of Organization/Project: \_\_\_\_\_
- b. Region/City you are currently based: \_\_\_\_\_
- c. Major Programs/Services provided by your organization: \_\_\_\_\_  
 \_\_\_\_\_
- d. our organization been maintaining collaboration (in years): \_\_\_\_\_
- e. Total number of staffs (including full & part time employees): \_\_\_\_\_

**Part B: Socio- Demographic Characteristics of Respondents**

- 1. **Age range:** 1) 25-29yrs  2) 30-39 yrs  3) 40-50 yrs  4) Above 50 yrs
- 2. **Gender:** 1) Male  2) Female
- 3. **Education level:** 1) Below Diploma  2) Diploma  3) First Degree  4) Master’s & above
- 4. **Current position** in the organization/project:  
 1) country directors  2) Project Manager/Coordinator  3) logistics managers   
 4) operations Officer  5) Other, Specify \_\_\_\_\_
- 5. **Years of experience in the organization:**  
 1) Less than 5 years  2) 6 – 10 years  3) 11 – 15 years  4) above 15 years

Below are questions related to the humanitarian supply chain collaboration practices, challenges, drivers and performance of the Eritrean Refugee Crises in Ethiopia. Kindly indicate your level of agreement to the items by putting a tick mark (√) in the boxes provided. A scale of 1-5 is used to respond to the questions where; 1. Strongly Agree 2. Agree 3. Neutral 4. Disagree 5. Strongly disagree

**Part C. Humanitarian supply chain collaboration Practices of the Eritrean Refugee Crises in Ethiopia**

S.No	Item: Humanitarian supply chain collaboration Practices	Scale				
		1	2	3	4	5
<b>1</b>	<b>Mutual Trust</b>					
1.1	Eritrean Refugee Crisis in Ethiopia assesses the situation in the affected area by building trustworthiness among local and international NGOs					
1.2	Eritrean Refugee Crisis in Ethiopia assesses the situation in the affected area by keep the promises made with local and international NGOs					
1.3	Eritrean Refugee Crisis in Ethiopia assesses the situation in the affected area being sincere in dealings with local and international NGOs					
1.4	Eritrean Refugee Crisis in Ethiopia assesses local and international NGOs would not deliberately take action that would negatively affect each other.					
1.5	Eritrean Refugee Crisis in Ethiopia does not use confidential information to take advantage of each other in assessing local and international NGOs					
1.6	Eritrean Refugee Crisis in Ethiopia expect that conflicts would be resolved fairly between local and international NGOs					
<b>2</b>	<b>Reciprocal Commitment</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
2.1	The reciprocal commitment that Eritrean refugee crisis in Ethiopia view the relationship as something they are very committed to.					
2.2	Eritrean refugee crisis in Ethiopia reciprocal commitment view the relationship as very important to them.					

2.3	Eritrean refugee crisis in Ethiopia reciprocal commitment view the relationship as something they intend to maintain indefinitely.					
2.4	The reciprocal commitment views the relationship as deserving their maximum efforts to maintain.					
2.5	The reciprocal commitment views the relationship as something they are willing to dedicate whatever people and resources to make it a success.					
3	<b>3.Relationship Specific Investment</b>					
3.1	local and international NGOs/ organizations have invested significant resources in improving personal relations between each other.					
3.2	local and international NGOs have developed procedures, routines, and understanding tailored to conducting joint tasks.					
3.3	local and international NGOs have made a great deal of investments (financial resources, time or effort) in building up their relationship.					
3.4	local and international NGOs commit their competent, motivated personnel to help achieving mutually desired collaboration objectives.					
<b>4</b>	<b>Long-Term Orientation</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
4.1	Both local and international NGOs focus on long-term goals in their relationship.					
4.2	Both local and international NGOs do not have long-term plans for working with each other.					
4.3	Both local and international NGOs expect to work together for a long time.					
4.4	Both local and international NGOs are willing to sacrifice long-term performance in order to achieve short-term results.					
4.5	Both local and international NGOs concentrate their attention on issues which will impact targets beyond the next few months.					
<b>5</b>	<b>Strategic Compatibility</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
5.1	Both local and international NGOs share common goals and objectives.					
5.2	There is a match in both organizations' philosophies/approaches to humanitarian operations.					
5.3	Both local and international NGOs share a similar organizational culture.					
5.4	Both local and international NGOs support each other's objectives.					
5.5	Both local and international NGOs have different goals.					
<b>6</b>	<b>Operational Compatibility</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
6.1	Technical capabilities of the two organizations are compatible with each other.					
6.2	The organizational procedures of local and international NGOs are compatible.					
6.3	Employees of both local and international NGOs have similar professional skills.					
<b>7</b>	<b>Resource Complementarities</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
7.1	The resources brought into the collaboration by each organization (local and international NGOs ) have been very valuable for the other.					
7.2	The resources brought into the collaboration by each organization (local and international NGOs )have been significant in getting the job done.					

7.3	Both local and international NGOs have separate abilities that, when combined, enable to achieve goals beyond their individual reach.					
7.4	Both local and international NGOs have complementary strengths that are useful to the relationship.					
<b>8</b>	<b>Coordination Capability</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
8.1	Both local and international NGOs use consistent policies and decision-making procedures in this relationship.					
8.2	Both local and international NGOs always take into account each other's concerns and feedback in their policies and programs.					
8.3	In most aspects of the relationship, local and international NGOs are jointly responsible for getting things done.					
8.4	Both local and international NGOs co-develop systems to evaluate and publicize each other's performance (e.g. key performance index, scorecard, and the resulting incentive).					
8.5	Both local and international NGOs have adjusted their incentive systems (bonus, goal agreement) to serve their collaboration's goals.					
<b>9</b>	<b>Relational Capability</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
9.1	The representatives from both local and international NGOs listen attentively when the other explains problems to them.					
9.2	When discussing points of disagreement, the representatives from both local and international NGOs always try to see the other's point of view.					
9.3	The representatives from both local and international NGOs openly address problems when they arise.					
9.4	The representatives from both local and international NGOs respect each other					
9.5	The representatives from both local and international NGOs interact with and treat the other side's managers or staff fairly.					
9.6	Both local and international NGOs provide each other with information that helps both parties.					
9.7	Both local and international NGOs effectively communicate expectations for each other's performance.					
9.8	Both local and international NGOs view information sharing and transparent communication between the sides as key.					
9.9	Both local and international NGOs have open and two-way communication.					
9.10	On any given occasion, both local and international NGOs can explain the win-win situation of the collaboration to each other.					

#### **D. Humanitarian supply chain collaboration Challenges of the Eritrean Refugee Crises in Ethiopia**

	<b>Item : Humanitarian supply chain collaboration Challenges</b>	<b>Scale</b>				
<b>A</b>	<b>1.External challenges</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
A1	The location and timing of disasters negatively affects Humanitarian supply chain collaboration					

A2	Unavailability of adequate and reliable information negatively affects Humanitarian supply chain collaboration					
A3	Frequent changes in the political environment negatively affects Humanitarian supply chain collaboration					
A4	Quantity, characteristics and needs of affected population negatively affects humanitarian supply chain collaboration					
A5	Urgency of relief response negatively affects Humanitarian supply chain					
A6	Intensity of damage to local infrastructure (i.e. communications, transportation) negatively affects Humanitarian supply chain collaboration					
A7	Unavailability local and international resources efficiently and effectively negatively affects Humanitarian supply chain collaboration					
A8	The presences of a considerable number and experience of involved Humanitarian organizations negatively affects Humanitarian supply chain collaboration					
<b>B</b>	<b>Inter-organizational challenges</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
B1	The differences among organizational objectives, missions or mandates negatively affects Humanitarian supply chain collaboration					
B2	The level of trust among organizations negatively affects Humanitarian supply chain collaboration					
B3	Cultural differences among organizations negatively affects Humanitarian supply chain collaboration					
B4	Communications barriers (i.e. language) negatively affects Humanitarian supply chain collaboration					
B5	The strength sense of mutuality negatively affects Humanitarian supply chain collaboration					
B6	Differences among organizations' organizational structure, negatively affects Humanitarian supply chain collaboration					
B7	Differences among organizations' operational or internal policies negatively affects Humanitarian supply chain collaboration					
B8	Differences among organizations' programming approaches negatively affects Humanitarian supply chain collaboration					
B9	Differences among organizations' standards and techniques or timeframes					
B10	Competition for funds negatively affects Humanitarian supply chain collaboration					
B11	Competition for visibility and media coverage negatively affects Humanitarian supply chain collaboration					
B12	The extent of disparity in organizations' power and resources					
B13	Symmetry between the parties (i.e. size)					
B14	Mechanisms to allocate joint costs, benefits or risks					
B15	Accountability over the performance negatively affects Humanitarian supply chain collaboration					
B16	Clarified roles and responsibilities negatively affects Humanitarian supply chain collaboration					

B17	Lack of tools or technical skills for coordination negatively affects Humanitarian supply chain collaboration					
B18	The principles of transparency and responsibility negatively affects Humanitarian supply chain collaboration					
<b>C</b>	<b>Organizational challenges</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
C1	Lack of transparency regarding existing and potential benefits					
C2	Increasing bureaucracy & decreasing flexibility					
C3	Accountability complications					
C4	Threatening timely response					
C5	The possibility of losing competition after sharing their own competencies with other agencies					
C6	Threatening the value of strengthening their humanitarian identity					
C7	Propensity towards command and control mentality					
C8	Management capacity and leadership style (i.e. collaborative leadership)					
C9	Capabilities of staff carrying out the coordinating efforts (i.e. skills, attitude, knowledge, experience)					
C10	Lack of incentives towards collaborative efforts					
C11	Limited resources (personnel, money (i.e. staff salary or travels) dedicated to collaboration efforts Short-term volunteers or temporary					
C12	Frequent changes in team leaders and point persons& The presentence of organizations' junior staff at the coordination meetings (having little leadership/ decision making capacity)					
<b>D</b>	<b>Donors-related</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
D1	Timing of resource availability(Usually available after the disaster)					
D2	Required burn rates (Spending the provided resources in a short period					
D3	Earmarked funds establish uses( Spending the provided resources on specific types of relief projects )					
D4	The use of renewable and short term contracting					
D5	Inducing competition among humanitarian organizations over scarce resources Threatening humanitarian principles.					

#### E. Humanitarian supply chain collaboration drivers of the Eritrean Refugee Crises in Ethiopia

	Item : Humanitarian supply chain collaboration drivers	Scale				
		1	2	3	4	5
	<b>1.Efficiency</b>					
	Our organization is derived to start a collaboration to get reduce cost					
	Our organization is derived to start a collaboration to eliminate					
	Our organization is derived to start a collaboration because of similarity in causes, goals or values					
	<b>2.Service quality</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Our organization is derived to start a collaboration for sharing &					
	Our organization is derived to start a collaboration to increase					
	Our organization is derived to start a collaboration to tackle complex					
	<b>3.Communication</b>					

	Our organization is derived to start a collaboration to reinforce our position and to develop a focal point to facilitate the communication					
	Our organization is derived to start a collaboration because of establishing and manage connections between possible collaborators					
	Our organization is derived to start a collaboration to diffusion of risk					
	<b>4.Environmental</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Our organization is derived to start collaboration to organizational					
	Our organization is derived to start a collaboration to maintain security and the safety of their employees.					
	Our organization is derived to start collaboration to improve public					

#### F. Humanitarian supply chain collaboration Performance of the Eritrean Refugee Crises in Ethiopia

	<b>Item : Humanitarian supply chain collaboration Performance</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>A</b>	<b>Performance Dimension: Responsive</b>					
1.1	Information Sharing practice between local and international NGOs made the organization to be more responsive					
1.2	Joint Decision Making practices between local and international NGOs made the organization to be more cost effective					
1.3	Joint Planning and forecasting practices between local and international NGOs made the organization to be more responsive					
1.4	Sharing benefits practices between local and international NGOs made the organization to be more cost effective					
<b>B</b>	<b>Performance Dimension: Cost Effectiveness</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1.1	Information Sharing practice between local and international NGOs made the organization to be more cost effective					
1.2	Joint Decision Making practices between local and international NGOs made the organization to be more cost effective					
1.3	Joint Planning and forecasting practices between local and international NGOs made the organization to be more responsive					
1.4	Sharing benefits practices between local and international NGOs made the organization to be more cost effective					
<b>C</b>	<b>Performance Dimension: Flexibility</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1.1	Information Sharing practice between local and international NGOs made the organization to be more flexible					
1.2	Joint Decision Making practices between local and international NGOs made the organization to be more flexible					
1.3	Joint Planning and forecasting practices between local and international NGOs made the organization to be more flexible					
1.4	Sharing benefits practices between local and international NGOs made the organization to be more flexible					
<b>D</b>	<b>Performance Dimension: Quality</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1.1	Information Sharing practice between local and international NGOs made the organization to enhance its service Quality					

1.2	Joint Decision Making practices between local and international NGOs made the organization to enhance its service Quality					
1.3	Joint Planning and forecasting practices between local and international NGOs made the organization enhance its service Quality					
1.4	Sharing benefits practices between local and international NGOs made the organization enhance its service Quality					
<b>E</b>	<b>Performance Dimension: Customer Service</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1.1	Information Sharing practice between local and international NGOs made the organization to enhance its Customer Service					
1.2	Joint Decision Making practices between local and international NGOs made the organization to enhance its Customer Service					
1.3	Joint Planning and forecasting practices between local and international NGOs made the organization enhance its service Quality					
1.4	Sharing benefits practices between local and international NGOs made the organization enhance its service Quality					

If any comment you well come:

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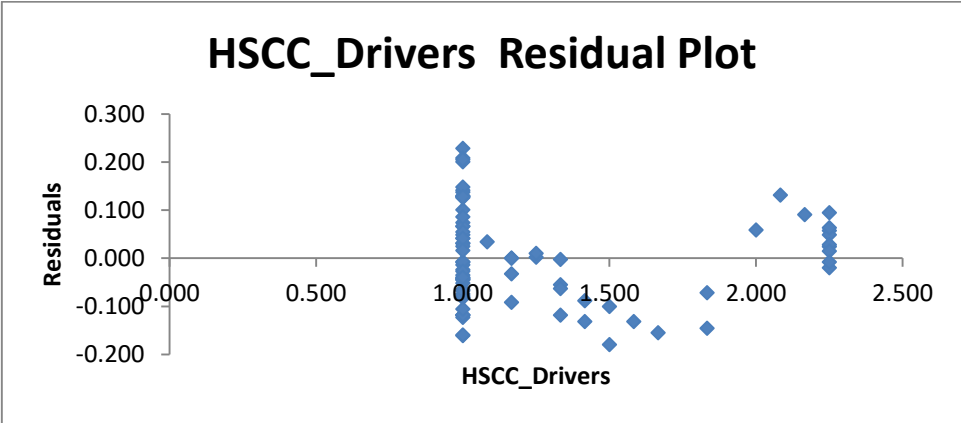
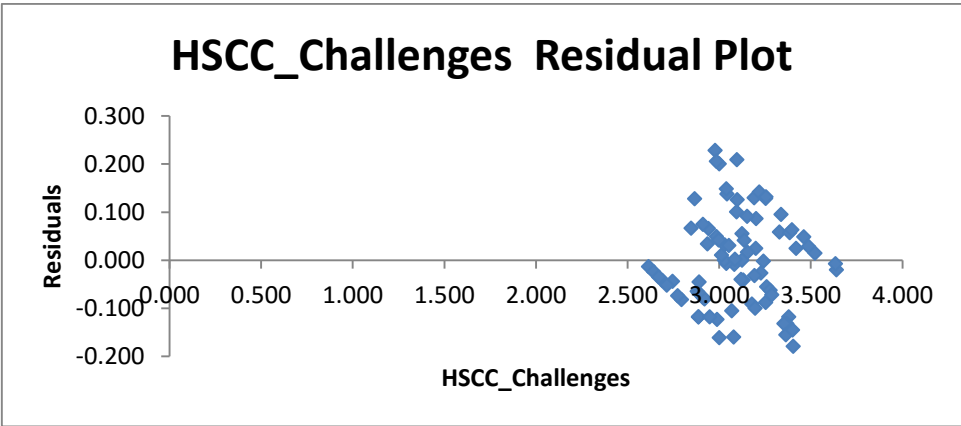
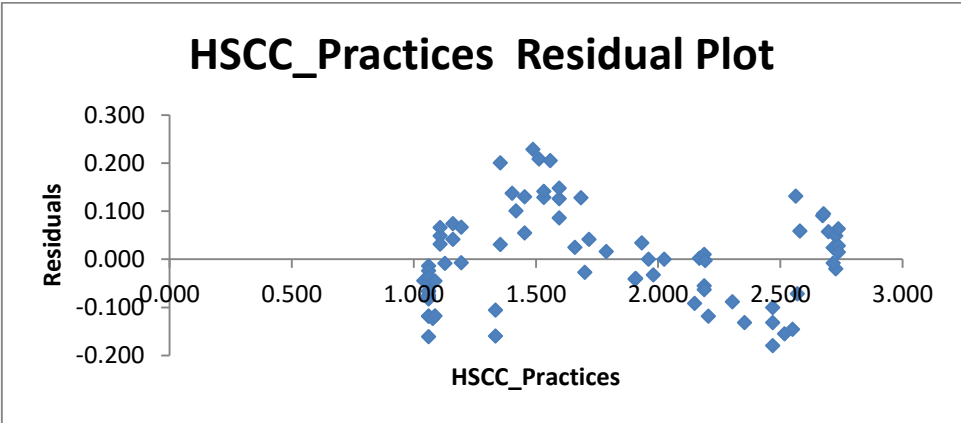
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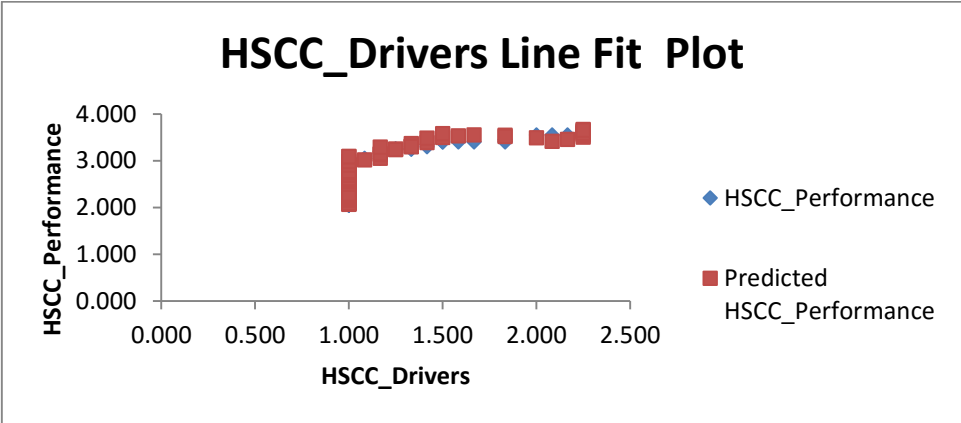
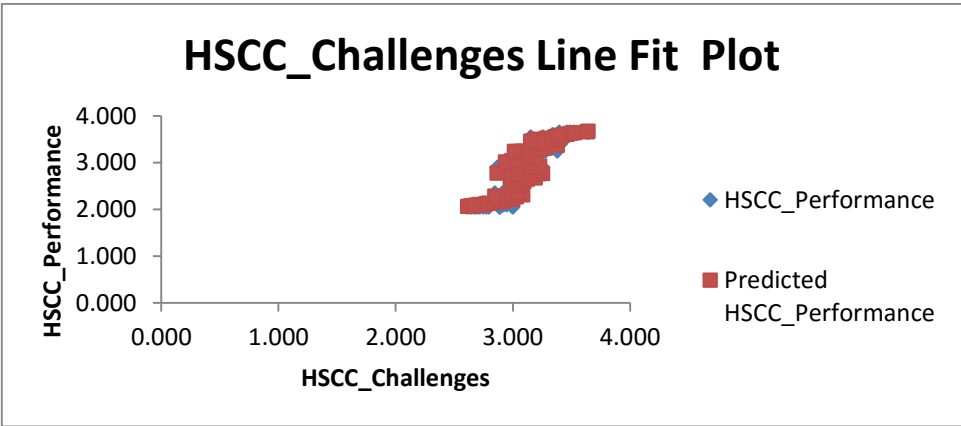
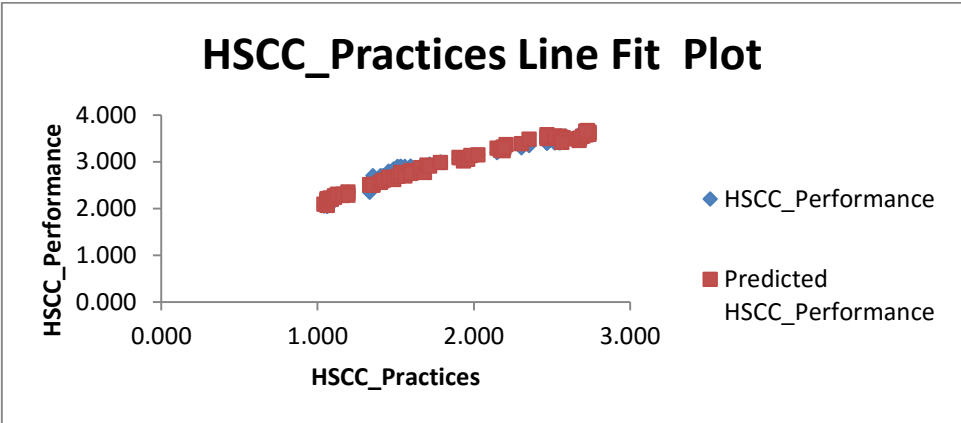
**Many Thanks! I really appreciate your time for now and special thanks your continuous support to humanity.**

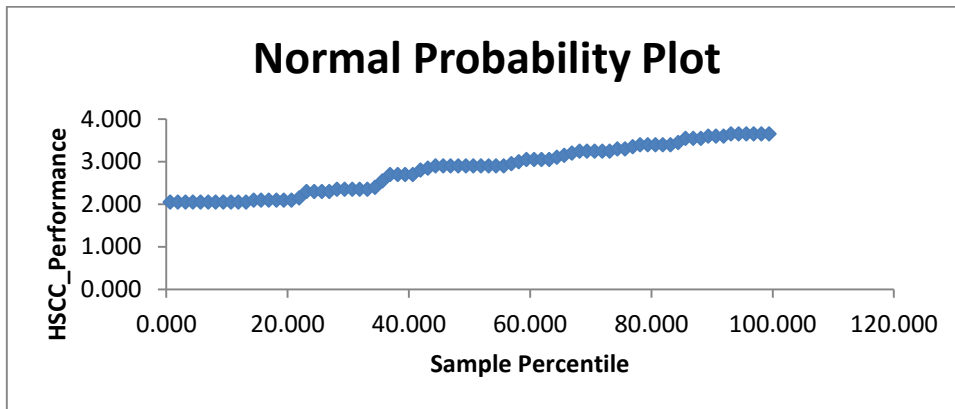
## APPENDIX-II

### A: Descriptive Statistics

Practice	Grand Mean (MEAN)	Grand Mean (STD)	Cronbach's Coeff.
Mutual Trust	1.496	0.498	0.841
Reciprocal Commitment	1.398	0.487	0.806
Relationship Specific Invest	1.359	0.478	0.757
Long-Term Orientation	1.730	0.912	0.782
Strategic Compatibility	1.713	0.742	0.793
Operational Compatibility	2.092	1.026	0.642
Coordination Capability	2.205	1.160	0.792
Resource Complementarity	1.656	0.768	0.736
Relational Capability	1.999	1.133	0.893
Challenges	Grand Mean (MEAN)	Grand Mean (STD)	Cronbach's Coeff.
Inter-organizational challenges	2.629	1.327	0.950
External challenges	3.741	1.495	0.880
Organizational challenges	2.911	1.583	0.920
Donors-related	2.910	1.542	0.794
Drivers	Grand Mean (MEAN)	Grand Mean (STD)	Cronbach's Coeff.
Efficiency	1.146	0.351	0.773
Service quality	1.200	0.398	0.775
Communication	1.367	0.629	0.726
Environmental	1.379	0.657	0.745
Performance	Grand Mean (MEAN)	Grand Mean (STD)	Cronbach's Coeff.
Responsive	1.869	1.033	0.793
Cost Effectiveness	1.825	0.557	0.741
Flexibility	4.009	0.565	0.736
Quality	2.875	1.376	0.757
Customer Service	3.563	1.093	0.731







## B: Test of Normality Assumption

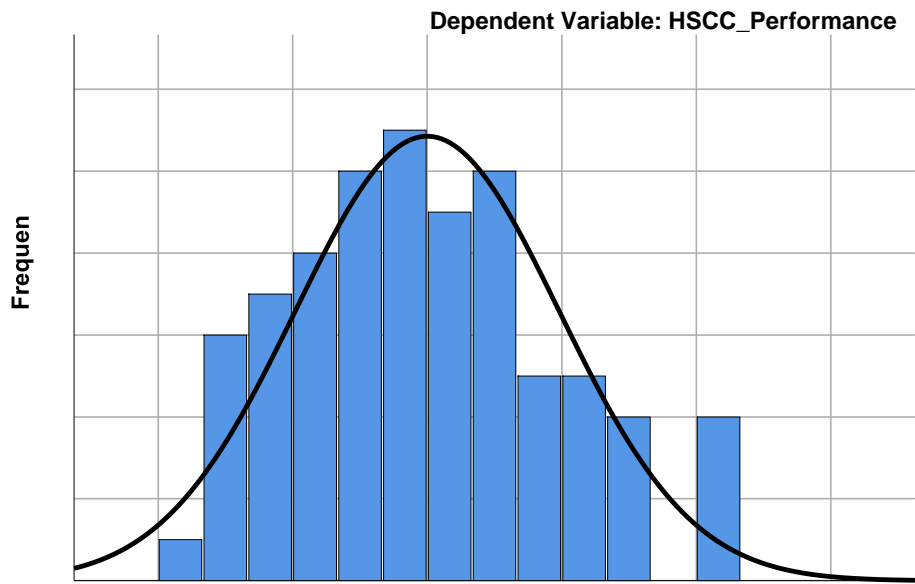
Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	HSCC_Drivers, HSCC_Challenges, HSCC_Practices <sup>b</sup>	.	Enter

Dependent Variable: HSCC\_Performance

All requested variables entered.

### C: Normality Assumption Test



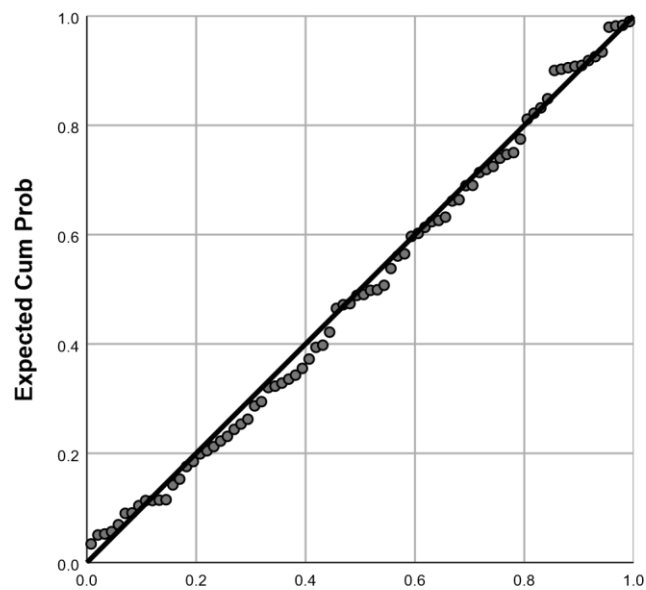
M  
Std.

### D: Homoscedasticity Assumption Test Scatter Plot

Regression Standardized Residual

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: HSCC\_Performance



Observed Cum Prob

## Appendix E: Residuals Statistics

### Descriptive Statistics

	N	Minimum	Maximum	Mean
HSCC_Practices	80	1.040	2.737	1.74135
HSCC_Challenges	80	2.614	3.640	3.104030
HSCC_Drivers	80	1.000	2.250	1.27291
HSCC_Performance	80	2.050	3.650	2.82813
Valid N (listwise)	80			

b

### Model Summary

Change Statistics			
M	Sig.	F	
			.

Predictors: (Constant), HSCC\_Drivers, HSCC\_Challenges, HSCC\_Practices

Dependent Variable: HSCC\_Performance

a

### Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.06389	3.67004	2.82813	.548842	80
Residual	-.179292	.227918	.00000	.096273	80
Std. Predicted Value	-1.392	1.534	.000	1.000	80
Std. Residual	-1.827	2.322	.000	.981	80

a. Dependent Variable: HSCC\_Performance

### Case Processing Summary

		N	%
Cases	Valid	80	100.0
	Excluded <sup>a</sup>	0	.0
	Total	80	100.0

a. Listwise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.927	.957	4

#### Appendix E: Anova: Single Factor

##### SUMMARY

Groups	Count	Sum	Average	Variance
HSCC_Practices	80.000	139.308	1.741	0.370
HSCC_Challenges	80.000	248.344	3.104	0.052
HSCC_Drivers	80.000	101.833	1.273	0.194
HSCC_Performance	80.000	226.250	2.828	0.310

##### ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	182.140	3.000	60.713	262.276	0.000	2.633
Within Groups	73.150	316.000	0.231			
Total	255.290	319.000				

#### Appendix C: PLS Regression

Latent Factors	Proportion of Variance Explained				
	Statistics				
	X Variance	Cumulative X Variance	Y Variance	Cumulative Y Variance (R-square)	Adjusted R-square
1	.745	.745	.921	.921	.920
2	.080	.825	.968	.969	.968
3	.045	.869	.978	.979	.978

Parameters	
Independent Variables	Dependent Variables
	HSCC_Performance
(Constant)	.720
Mutual_Trust	.258
Reciprocal_Commitment	.170
Relationship_Specific_Invest	.074
LongTerm_Orientation	.046
Strategic_Compatibility	.091
Operational_Compatibility	.100
Coordination_Capability	.031
Resource_Complementarity	.084
Relational_Capability	.110
External_challenges	.089
Interorganizational_challenges	.125
Organizational_challenges	-.003
Donors_related	.028
Efficiency	-.048
Service_quality	-.079
Communication	-.037
Environmental	-.032

Variable Importance in the Projection			
Variables	Latent Factors		
	1	2	3
Mutual_Trust	1.138	1.163	1.160
Reciprocal_Commitment	1.173	1.150	1.145
Relationship_Specific_Invest	1.115	1.088	1.083
LongTerm_Orientation	1.136	1.108	1.103
Strategic_Compatibility	1.169	1.143	1.138
Operational_Compatibility	1.188	1.185	1.183
Coordination_Capability	1.128	1.100	1.097
Resource_Complementarity	1.156	1.134	1.128
Relational_Capability	1.182	1.160	1.160
External_challenges	.195	.218	.284
Interorganizational_challenges	1.202	1.199	1.205

Organizational_challenges	.249	.336	.396
Donors_related	.081	.214	.237
Efficiency	.752	.833	.829
Service_quality	.832	.906	.905
Communication	1.005	1.013	1.019
Environmental	.963	.989	.989

Cumulative Variable Importance

Weights			
Variables	Latent Factors		
	1	2	3
Mutual_Trust	.268	.372	.181
Reciprocal_Commitment	.277	.125	.095
Relationship_Specific_Invest	.263	-.037	-.086
LongTerm_Orientation	.268	-.031	-.052
Strategic_Compatibility	.276	.093	.079
Operational_Compatibility	.280	.266	.232
Coordination_Capability	.266	-.016	-.161
Resource_Complementarity	.273	.135	-.025
Relational_Capability	.279	.141	.276
External_challenges	.046	-.114	.423
Interorganizational_challenges	.283	.270	.384
Organizational_challenges	-.059	-.246	.489
Donors_related	.019	.211	-.242
Efficiency	.177	-.419	.039
Service_quality	.196	-.426	-.201
Communication	.237	-.271	-.361
Environmental	.227	-.329	-.238
HSCC_Performance	.263	.191	.126

Loadings			
Variables	Latent Factors		
	1	2	3
Mutual_Trust	.243	.333	.191
Reciprocal_Commitment	.269	.088	.074
Relationship_Specific_Invest	.267	-.032	.038
LongTerm_Orientation	.271	-.036	-.070
Strategic_Compatibility	.270	.058	.067
Operational_Compatibility	.262	.198	.121
Coordination_Capability	.268	.015	-.088
Resource_Complementarity	.264	.138	-.018

Relational_Capability	.270	.046	.064
External_challenges	.054	-.268	.688
Interorganizational_challenges	.266	.153	.123
Organizational_challenges	-.041	-.428	.617
Donors_related	.004	.310	-.458
Efficiency	.208	-.488	-.021
Service_quality	.228	-.420	-.140
Communication	.257	-.200	-.185
Environmental	.252	-.303	-.138
HSCC_Performance	1.000	1.000	1.000