Factors Affecting the Humanitarian Supply Chain Performance of International Rescue Committee/Ethiopia

BY

FEREHIWOT KASSAHUN

[ID: GSD/0187/06]

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Advisor: SHIFERAW MITIKU (PhD)

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Declaration

I, **Ferehiwot Kassahun** the under signed, declare that this thesis entitled "*Factors affecting Humanitarian supply chain performances: The Case of International Rescue Committee*", is my original work and to the best of my knowledge has not been presented for a degree by any other person, and that all the sources of material used for the thesis have been duly acknowledged.

Declared by:

Ferehiwot Kassahun

_____

Date & Signature

Statement of Certification

This is to certify that the thesis carried out by **Ferehiwot Kassahun** on the topic entitled: "*Factors affecting Humanitarian supply chain performance: The Case of International Rescue Committee*" is her original work and appropriate for submission for the award of Masters of Art Degree in Logistics and Supply Chain Management.

Advisor

Shiferaw Mitiku (PhD)

_____

Date & Signature

ADDIS ABABA UNIVERSITY

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Factors affecting humanitarian supply chain performance; the case of International Rescue Committee/Ethiopia

Ferehiwot Kassahun

Approved by Board of Examiners:

Advisor	Signature	Date
Internal Examiner	Signature	Date
External Examiner	Signature	Date

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Abstract

Internal reports from Global Supply Chain Quality Assurance Team located in International Rescue Committee Head Quarter (based in New York) showed that the Ethiopia country office supply chain performance needs improvement. The matrix for performance evaluation was mainly, integration, innovation, reliability, quality of work, efficiency and accountability. Therefore, the main objective of the study was to identify factors affecting the Humanitarian supply chain performance of International Rescue Committee-Ethiopia. The researcher used an explanatory design and conduct survey study of 94 respondents. Data was collected through questionnaire and structured interview. Data was analyzed by using Statistical Package for Social Since version 20, descriptive statistics were used to compute frequencies and mean value. In addition inferential statistics also used for correlation and linear regression. The majority of the respondents showed that the humanitarian supply chain performance was moderate. The relationship of factors were tested by using Pearson correlation and the research question were tested using regression analysis. On the effect on the mentioned factors on supply chain performance, the study found that external rules and regulation has more effect on Humanitarian supply chain performance on the organization following by socio-economic and infrastructure while internal policy and procedure has the least effect compared to the others. The study recommended some of the factors such as market instability, security issue, government restriction and infrastructure require policy level advocacy, while others including some elements of infrastructure, internal policy and others require more investment in systems and more budgetary allocation from donors. Suggestions for further research includes that, the finding of this study on performance indicators was moderate to low however additional study is require for further identification on which performance indicator should be taking in to consideration. This study tried to see the Humanitarian supply chain performance from infrastructure, socio-economic, external rules and regulation and internal policy and procedure. There is need to have the perspective of beneficiaries and donors about the performance of supply chains in order to draw conclusions from more informed stand point.

Key Words: Factor, Humanitarian, Supply chain, Performance

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Acronyms and Abbreviations

BVA:	Budget Vs Actual
ERP:	Enterprise Resource Planning
GSC:	Global Supply Chain
GSCQAT:	Global Supply Chain Quality Assurance Test
IRC:	International Rescue Committee
NGO:	Non-Governmental Organization
SCM:	Supply Chain Management
HSC:	Humanitarian Supply Chain
HSCM:	Humanitarian Supply Chain Management
KPI:	Key Performance Indicator
SOP:	Standard Operating Procedure

CHAPTER ONE
INTRODUCTION

This chapter presents background of the study, background of the organization, problem statement, research question, general and specific objectives, significance, scope, limitation and organization of the study.

1.1. Background of the study

Humanitarian relief works are conducted by different governmental and non-governmental organizations in response to different disasters. Relief organizations deal with emergency humanitarian issues such as supply of drugs, food aid, water and sanitation, providing shelter to the affected communities are among others. Humanitarian organizations put a lot of effort into helping nations and people to recover from disasters by providing relief commodities. Disasters can be calamities, destructive actions, plagues or crises. As a result, these disasters bring small and severe harm to the victims. In order to alleviate the suffering of people, effective and efficient performance of humanitarian supply chain operation is important (Balcik *et al.*, 2010).

The aid effectiveness discussion has seemingly been incorporated at the operational level as an increased focus on cost and time efficiency; on the other hand, it is criticized, since this can lead to overlooking other considerations, such as equity (Balcik *et al.*, 2010) and sustainability (Haavisto, 2012). However, efficiency should not be disregarded, since humanitarian organizations are also required to demonstrate efficient operations from the beneficiary side, especially when a rapid onset disaster occurs, operational efficiency can be vital and lead to save lives (van Wassenhove, 2006). In addition to the beneficiary there are multiple actors such as; humanitarian organizations, donors, implementing partners, and local governments (Kovacs and Spens, 2007) who are interested in the performance of humanitarian supply chains, both to understand how it can be improved and to gain knowledge of how the funds were used in the operations. This interest is observable in humanitarian actors' efforts to measure the performance of their activities. Major donors, such as the European Development Fund and the United Nations (UN), ask implementing partners to monitor and evaluate their programs and measure their operational performance (Tatham and Hughes, 2011). The heavy reporting requirements have been criticized by humanitarian organization to counteract efficiency requirements in

emergency settings. However, humanitarian organizations have also recognized that if supported by data, funding appeals are more likely to reach a wider audience; and they have started to value information based decision making, instead of anecdotal. The performance measurement of humanitarian activity can thus be in line with both humanitarian organizations' and donor's desire to improve the transparency of operations and preferably lead to a better level of accountability (Zimmerman and Stevens, 2006).

Challenges and success factors in humanitarian logistics have however been studied. Kovacs and Spens (2009), identify challenges as the lack of the following: exemptions from customs, clear mandates and legislation supporting national humanitarian organizations, and qualified in country staff. Pettit and Beresford (2009) identified structural, critical success factors in the context of humanitarian supply chain and logistics as: strategic planning resource management, transport planning, capacity building, information management, technology utilization, human resource management, continuous improvement, supplier relations, and supply chain strategy. On the other hand, Gustavsson (2003) identified challenges in humanitarian logistics as: controls in NGO capacity, arrival of humanitarian staff, lack of in depth knowledge, funding bias towards short term response, and lack of investment in technology and communication.

Hence, if supply chain performance were to be defined by how it would be measured in the humanitarian sector, the most common meanings would be financial performance (Beamon, 1999), as well as time and volume related performance (Gleason and Barnum, 1986), with indicators such as lead time and the order fill rate.

Humanitarian supply chain performance objectives are focused on efficiency, quality, flexibility (adaptability to change), but further focus on accountability (process adherence and transparency), reliability, responsiveness (to demand and sustainability is suggested. Sustainability is a supply chain performance objective that can serve as mediator between different levels of goals and actors, since it pre-imposes long term thinking. Misalignment among goals can occur, for example; accountability and efficiency goals are imposed in humanitarian context characterized by unstable supply markets, uncertain demand, infrastructural uncertainty, and security risk (Caplice and Sheffi, 1994).

1.2. Background of The Organization

International Rescue Committee (IRC) was founded in 1933, on the recommendation of Albert Einstein to assist opponents of Nazi Germany. IRC is a global organization works in 25 countries worldwide and its staff are comprises of citizens from an average of forty countries. United Nations, government and individual donors from around the world support IRC's programs. In Africa, IRC has programs in 15 countries. IRC is consistently rated as one of the top international relief charities in the United States (International Rescue Committee Manual, 2016).

IRC Ethiopia, part of a global non-sectarian voluntary organization, is committed for protecting and improving the livelihoods of refugees, refugee host communities, internally displaced persons, disaster affected and disaster populations as well as conflict-impacted communities by providing a well balanced mix of emergency relief, rehabilitation and development oriented programs that focus on participation, capacity building and sustainable self-reliance. The Ethiopia program has seven offices located in Tigry, Oromiya and SNNP regions (International Rescue Committee Manual, 2016).

IRC Ethiopia Supply chain division has three branches namely, Warehouse & Distribution, Procurement and Transport Management. Supply chain performance measurement in IRC's context is "the process of monitoring work in order to know if they are achieving their supply chain and supplier contracting goals efficiently and effectively and priorities should be identified and developed with the Global Supply Chain (GSC)". (IRC-supply chain manual, 2012).

Key Performance Indicators (KPI) in IRC are metrics measuring progress towards the goals and strategic objectives of the Humanitarian supply chain performance. The process of identifying KPIs in IRC includes: addressing the overall goals of the department (For example: integration, innovation, quality of process, accountability, efficiency and reliability), determine the primary indicator as to whether a goal is being reached and determine the data which have to measure this indicator (IRC-supply chain manual, 2012).

Supply Chain in IRC has the responsibility to share KPI reporting with other country office departments. Finance staff, program staff and others shall be provided with data and analysis

that will assist them with fulfilling their roles in the Country Office. (IRC-supply chain manual, 2012)

1.3. Problem Statement

With the established fact that the study of factors affecting supply chain performance for humanitarian aid and disaster relief sector is the most significant issue for developing and implementing a successful humanitarian supply chain strategy (V.Wassenhove, 2006).

Wassenhove (2006) also added that one of the biggest hurdles to overcome in humanitarian relief supply chain is the huge uncertainty in demand and supply as well as the assessment of the needs accompanied by time pressure to supply on time. Hence humanitarian supply chain is complex making the field most expensive part during disaster relief of total expenditures.

IRC Ethiopia faced challenges common to humanitarian organizations in executing their supply chain processes and strategy. The challenges are manifested through different internal stakeholder opinions on the expected supply chain performance even though the organization is good in defining performance measurement indicators (IRC, 2018).

However, some internal sources from Global Supply Chain Quality Assurance Team (GSCQAT) located in IRC-Head Quarter (based in New York) reported that, the supply chain performance of Ethiopia country office needs improvement compared to the other regional offices located in east Africa (GSCQAT, 2018).

Based on that, management bodies are trying to locate the root cause for why the supply chain activities of the IRC Ethiopia office does not meet with standard and do not document a plan of action for improvement? The matrix for performance evaluation was mainly, integration, innovation, reliability, quality of work, efficiency and accountability. Ira Haavisto (2014), studied the understanding of supply chain performance objectives in the humanitarian context through contingency approach. IRC were a pilot for the study based on the mentioned performance indicators.

There was also different unpublished studies that made in IRC Ethiopia with different topic and context but there is no empirically showed the cause and effect relationship between the infrastructure, socio-economic, external rules and regulations and internal policy and procedures associated with factors affecting the humanitarian supply chain performance of IRC Ethiopia. Accordingly, the study deploys empirical study and sought to fill the empirical gap that no former researches have been done so far.

1.4. Research question

The study addresses the factors that affect supply chain performance in IRC Ethiopia program. In such circumstance, the study guided by focus to answer the following research questions:

- How infrastructure does affects the humanitarian supply chain performance of IRC Ethiopia?
- How does socio-economic factors affect the humanitarian supply chain performance of IRC Ethiopia?
- How external rules and regulation does affects the humanitarian supply chain performance of IRC Ethiopia?
- How internal policy and procedure does affect the humanitarian supply chain performance of IRC Ethiopia?

1.5. Objectives of the Study

General Objective

The general objective of this study is to assess the factors that affect supply chain performance in humanitarian organization specifically in IRC-Ethiopia program.

Specific Objective

The study sought to achieve the following specific objectives:

- To assess the effect of infrastructure on humanitarian supply chain performance at IRC Ethiopia

- To examine the effect of socio-economic factor on humanitarian supply chain performance at IRC Ethiopia
- To assess the effect of external rules and Regulation on humanitarian supply chain performance at IRC Ethiopia
- To examine the effect of internal policy and procedure on humanitarian supply chain performance at IRC Ethiopia

1.6. Significance of the Study

This study add to the existing body of knowledge by informing humanitarian supply chain performance in the right context through empirical evidence from supply chain practitioners and have a great significance to all stakeholders interested in the humanitarian supply chain response. The study determined factors affecting supply chain performance in humanitarian response of IRC Ethiopia. The findings are also vital as reference tools for future research on humanitarian supply chain performance.

From the study findings, it is easier to address what and how the factors affecting the humanitarian supply chain performance of IRC Ethiopia and with extension of all other NGOs in Ethiopia those are worked on relief area.

1.7. Scope of the Study

In view of the limited resources & time available at the carrier of the researcher, this study particularly covers the performance of supply chain in IRC Ethiopia program but other IRC offices outside Ethiopia were not studied. Which means the study did not considered other regional offices, humanitarian organizations, internal customers, suppliers, other supply chain actors, donors, beneficiaries and etc.

In addition, the study gives an insight in relation to the research question & objectives specified above and not meant to address all the issues related to the Humanitarian Supply Chain performance of NGOs operations in Ethiopia. The study addresses the humanitarian supply chain

performance only with four perspectives, Infrastructure, Socio-Economic, External Rules and Regulations (Donor and Government) and internal policy and procedure factors. However other variables were not considered.

1.8. Limitation of the Study

The study limited to IRC Ethiopia and the findings also used for only IRC Ethiopia but not to other Regional offices (based in Africa) and humanitarian organizations in Ethiopia.

Another limitation of this study relates to the research area it was carried on. The population were from Logistics and supply chain division (Warehouse & distribution, Procurement and Transport Management) because the researcher believes that the correct data would be obtain from the staffs of the mentioned division (assistants, stock keepers, officers, senior officers, managers, assistant coordinator and coordinator) and organize the questioner and interview through key circumstances to identify the factors that affect the supply chain performance in humanitarian organization of IRC Ethiopia.

1.9. Organization of the Study

This study was organized from five chapters. The first chapter shows the introductory part; the general background of the study, statement of the problem, objective, significance, scope of the study, limitation of the study; The second chapter reviews of theoretical and empirical literature; the third chapter presents the research methodology that are used in the study; data analysis and findings are presented in chapter four; summery, conclusions and possible recommendations are in final chapter, which is chapter five.

CHAPTER TWO
RELATED LITERATURE REVIEW

This chapter presents review of theoretical and empirical literature related with factors affecting the humanitarian supply chain performance. The chapter also highlights concepts and ideas, practices of humanitarian supply chain performance. Conceptual framework of the research and empirical evidences were also included.

2.1. Theoretical Literature Review

2.1.1. Humanitarian Supply Chain Challenges

The humanitarian context proved even more complex than how prior research has viewed it. It has been claimed to differ from the common setting of supply chain management by an aspect of uncertainty (Long and Wood, 1995; Beamon, 2004) in terms of timing, location, type, size, and demand. In rapid onset disasters such as earthquakes, hurricanes, or terrorist attacks, humanitarian organizations struggle with the predicament of demand or needs (Beamon and Blacik, 2008), since in the humanitarian context, demand is referred to as the needs of beneficiaries (Kovacs *et al.*, 2010). However, the claim that humanitarian efforts would always be labeled by uncertainty has been criticized by (Jahre and Navangul, 2011), who argued that uncertainty only exists in sudden onset disasters, even though the majority of disasters are slow onset.

The goal of humanitarian supply chain is to be able to respond to multiple interventions, as quickly as possible and within a short time frame. According to McLachlin *et al.*, **(**2009), one of the characteristics of humanitarian logistics is the level of uncertainty they have to cope with. Every day, in many parts of the world, humanitarian workers are confronted with various forms of uncertainty. Given that beneficiary needs evolve over time and are really difficult to forecast, demand and supply vary on a daily basis. Also, there are many cause and effect interactions that affect operations. Local infrastructure may also be damaged to the extent that the supply chain network has to be continuously rethought, along with the reconstruction of roads, airports and other key elements of the network (Gray, 2006).

Humanitarian supply chain have, therefore developed tools and methods to respond quickly to short-term changes, thereby improving the agility of their supply chain owing to market turbulence and demand (Lee, 2004). Consequently, being able to react quickly to changes is an essential capability for humanitarian supply chains (Swierczek, 2009). Cross-learning opportunities between business and humanitarian sectors have been listed by many authors (Gray, 2006).

2.1.2. Humanitarian Supply chain performance

The several metrics of supply chain performance enable firms to have a benchmark to assess their supply chain performance including internal and external firm. The application of internal linkage performance metrics results in elimination of non-value added activities, reduction in order variation, faster product flows, more efficient use of time, material and human resources, and reduction of the bullwhip effect (Frohlich & Westbrook, 2001). Benefits of usage of external linkage performance metrics include the creation of end-customer value through closer integration.

2.1.3. Factors that affect Humanitarian supply chain Performance

The humanitarian context comes with several conditions that make humanitarian operations particularly challenging. A distinction can be made between: indigenous factors, which relate to the way operations are managed; non-situational exogenous factors, which are generic conditions that influence project outcomes, outside immediate project control; and situational exogenous factors, which are project specific determinants of performance. These factors are elaborated below;

Indigenous performance determinants originate from within the supply chain, and can be directly influenced by the supply chain actors themselves. Examples are factors related with personnel, information systems and coordination of activities. Humanitarian organizations often struggle with attracting, training and withholding skilled staff (VanWassenhove, 2006; Thomas and Kopczak, 2005). High staff turnover rates lead to difficulties in knowledge transfer (Kovacs and Spens, 2009; Van der Laan *et al.*, 2009).

Limited access to and use of technology (Beamon, 2004; Van der Laan *et al.*, 2009), such as information systems and software tools, make it hard or impossible to retrieve, store, distribute (Lee and Lee, 2007; Van Wassenhove and Pedraza Martinez, 2012; Van der Laan *et al.*, 2009) analyze field data. Lack of standards and performance indicators (Thomas and Kopczak, 2005; Van der Laan *et al.*, 2009) hinder proper improvement of supply chain processes. Lack of coordination with supply chain actors (Thomas and Kopczak, 2005; Kovacs and Spens, 2007; Samii, 2010) and external stakeholders (Van der Laan et al., 2009) may lead to oversupply in some regions and under-supply in others, while competing for the same resources drives up prices. The negative performance impact of these indigenous factors may be expected to be mitigated over time, as the role of supply chain is more and more acknowledged within the supply chain (Thomas and Kopczak, 2005; Van der Laan *et al.*, 2009).

By contrast, situational exogenous factors originate from outside the supply chain and hence are beyond the immediate control of supply chain actors. Kunz and Reiner (2012) propose a classification of these factors consisting of infrastructural factors, like local transportation capacity and road/main port accessibility, environmental factors (influencing the demand for certain medicines), socio-economic factors (influencing the supply of goods and skilled labor), and governmental factors (the political climate is often volatile, trucks might be stopped or blocked by rebel forces in times of war, looting of the supply might occur, or vehicles are even completely deviated from the intended location).

Infrastructure

Infrastructure such as the availability of a road network, railway, airports, power supply, play an important role in the performance of humanitarian logistics (Chakravarty, 2011). Indeed, the existence of a well-developed road infrastructure will, for example, facilitate the logistical operations, while a poor road network tends to disrupt and slow down the distribution of relief items for example; the presence of an airport close to the disaster location will facilitate the delivery of relief aid.

During a disaster, communication is as important as food and water. A disaster can damage telecommunication infrastructure. If an event happens in a densely populated area, thousands of

people can try to make calls at the same time overloading the system (Van Wassenhove and Samii, 2003).

Regardless of the type of uncertainty affecting the humanitarian supply chain, information management can help to reduce the complexity brought about by uncertainty. That is what several initiatives driven by the humanitarian agencies attempt to do through designing a common language, increasing visibility, and promoting collaboration (Chakravarty, 2011).

Goods are often brought into a country at an entry point and then moved to collection sites run by relief organizations. In relief work, both in disasters and complex humanitarian emergencies, damaged infrastructure, inaccessible infrastructure, and the lack of infrastructure needed for large-scale assistance lead to bottlenecks, delays, and congestion at entry points to the disaster area (Van Wassenhove and Samii, 2003).

Socio-Economic

Socio-economic factor described as, uncertainty in demand and supply, instability of market economy, the absences of local suppliers, availability staff competition, absences of financial donors, the culture and language of the host country, high inventory and transportation cost and lack of trust among the supply chain partners (Oloruntoba & Gray 2006).

Socio-economic such as the type of market economy, the presence of local suppliers, the level of education of the population, the local culture and religion will assist relief organizations to adapt their operation to the context, and can affect the performance of humanitarian supply chain (Altay *et al.*, 2009; Dowty and Wallace, 2010; Kandiyoti, 2007; Leon *et al.*, 2009; Maon *et al.*, 2009). In a well-developed economy, some basic supplies can be purchased from local suppliers, and staff can be hired locally for supply chain activities. In a less developed context, all supplies have to be imported and most tasks must be managed by foreign staff.

External Rules and Regulations

The external rules and regulations are including government and donor's factors. The government factors, such as the type of regime, the national regulations toward relief

organizations, the efficiency of the state, the level of corruption, are factors which influence organizations' operational decisions and their ability to conduct humanitarian logistics operations.

A government which is suspicious of relief organizations' activities will, for example, tend to restrict the entry of staff and goods in the country in the aftermath of a disaster (Seekins,2009), while a cooperative government will welcome relief organizations on its territory (McLachlin and Larson, 2011; Van Wassenhove, 2006). The security context in a country is also dependent from the government (or its absence), and strongly impacts the performance of the logistics response (Long and Wood, 1995).

Donors factors, such as the donation might be what is not required, trusts and foundations, conditions given by donors, meeting the budget and dependency on contributions, the donors may dictate on how the funds are to be used (McLachlin and Larson, 2011; Van Wassenhove, 2006).

The supplies donated may not necessarily be what are required at those times. The donors may dictate on how the funds are to be used. A situation may arise where particular supplies are required but the funds cannot be used to procure these supplies therefore this is a big challenge in supply chain operation (Herzer & Nunnenkamp 2012).

Internal policy and procedures

According to J. Balland *et. al***.,** (2013), internal policy and procedure factors related to employee turnover, corruption, lack of contingency plan, poor organizational structure and systems, lack of employee accountability, internal budget constraints, excessive inventory, lack of top management support and complexity of performances measurement and others.

The internal policy and procedure must have a national or regional plan based on the vulnerabilities of the infrastructure, the supply chain support in the area, and governmental emergency response abilities. It is not possible to anticipate how crises evolve, but it is advantageous to have a plan. If proper planning is in place with realistic, implementation can be less challenging (J. Balland *et. al,* 2013).

If there is a gap (unsatisfactory performance), it is assumed that relief organizations will adapt their strategies, thus dealing with the operational decision areas (allocation of resources, level of cooperation, outsourcing, etc.), in order to reach a strategic fit between the enablers and the requirements of the beneficiaries. Relief organizations' enablers (resources, processes and capabilities) are influenced by the availability of donations, which in turn is influenced by the requirements of the beneficiaries and by performance as well (Slack and Lewis, 2002).

2.1.4. Humanitarian Supply Chain Performance

Considering the challenges explained above, that are encountered during humanitarian disaster operations, it is necessary that a framework of supply chain practices is identified and adopted that will ensure that disaster operations are conducted effectively and effectively.

Concepts addressing agility, flexibility and responsiveness have been identified as relevant as they place an emphasis on customer focus (Stevenson & Spring, 2007; Aprile, *et al*, 2005). Researchers acknowledge the significance of these concepts as they enhance the level to which an organization adapts to changing customer needs.

Armistead (1999) argued that performance measurement should be derived from performance objectives and from strategy and that performance measures are a basis for improvement. Performance measurements can both be describing process results from the past and the present, and they can be used to set performance goals (Blecken *et al*., 2009). They can furthermore allow for a simplified view of complex structures and can be formulated by consolidating quantitative or qualitative information (Armistead, 1999). Performance measurement can be design to either measure the performance of a whole organization or a single department unit or function (Blecken *et al.*, 2009).

Table 1.1 shows the performance objectives that the case organization focuses on. Such performance objectives are extracted from the data used either as an articulated strategy theme or as an important performance objective.

***Table 1.1*:** Performance objective and process; IRC KPIs

Performance Objective **Sub-processes**	**Efficiency KPI**	**Quality KPI**	**Reliability KPI**	**Accountability IPI**
Process procurement orders	Process lead time/warehouse turnover	% PRs with mistakes; estimated/actual	% PRs with confirmed estimated arrival date	Segregation of duties
Inventory Management	Warehouse fill rate/warehouse turnover	Warehouse spot-checks conducted; % supplies close to end date	% orders not met on time; #inventory after grant close	% of spot checks with dif; value of dif, in spot checks
Market survey	% of supplies with existing pricelist	% of suppliers with due diligence/ATC	# of updates in supplier lists/(month/year)	# of suppliers with due diligence/ATC
Quality delivery	Value of non 'usable' supplies	% of complaints, returns		Beneficiary 'satisfaction'
Maintenance of fleet	% of serviceable fleet	% of serviceable fleet; # of accidents	Availability of fleet	% of reuse of fleet in other programs
General supply chain	SC cost (inc. personnel)/total program cost; process lead time	Perfect order rate (% of complaints/returns)	% orders met on time (e.g. with 1-5 days margin)	Internal audit (better that last time or regional benchmark)

Source: (Ira Haavisto, 2014)

Based on the research made by Ira Haavisto (2014 in Head Quarter, NewYork) IRC has an articulated supply chain performance objective and strategy. The supply chain strategy was developed and articulated in autumn 2011 and launched throughout the organization thereafter. The supply chain strategy states that the IRC supply chain should be 'efficient', 'innovative' and

'integrated' and other performance themes, quality, accountability and reliability are mentioned as important performance measurement. The supply chain performance themes for the case organization differ to some extent from the themes brought up in supply chain literature, such as responsiveness and efficiency (Chase et al, 2011, efficiency and flexibility (Russel and Taylor, 2003), cost reduction (Ballou, 2004) and integration (Heizer and Render, 20017).

2.2. Empirical Literature Review

Similar to the practitioners, researchers have recently begun paying attention to humanitarian performance measurements, and several metrics have been developed to apply to the humanitarian context (de Brito *et al.*, 2007; Schulz and Heigh, 2007; Beamon and Black, 2008; Blecken *et al*., 2009). According to Davidson (2006), performance measurement metrics are recommended to be aligned with organizational goals in order to push supply chains toward the right goals and thus improvement. However, Abidi and Klump (2013) highlighted that one of the challenges in measuring performance in the humanitarian setting is a misfit between short term operative goals and long term strategic goals. There are other challenges identified when trying to measure humanitarian operative performance due to the difficulty in obtaining accurate data and limited information technology. Most challenges in developing and implementing humanitarian performance measurement are results of the complex operative environment, with limited ability and motivation of humanitarians to gather accurate data before saving lives (Tatham and Huges, 2011). Related challenges involve criticism that humanitarian actors only implement measurements of the process and output, not the outcome or impact of humanitarian activities. Thus a broader scope is called for that not only considers processes when measuring performance but also both short and long term goals (Abidi and klumpp, 2013). The long term goals excluded from current performance measurement frameworks are impact from the beneficiary's perspective and impact on society.

Anthony Njiiru Ngoto (2016) studied factors affecting supply chain management performance in international non-governmental organizations in Kenya. The study design was descriptive and the independent variables have been strategic supplier relationship, contract management and information sharing and the performance ware measured by three variables; targets, cost

reduction and effectiveness. The findings was proposed by using Pearson correlation coefficient and Bi-variants correlation coefficient, discovered that all the mentioned variables affect the humanitarian supply chain performance and finally it also concluded that the international NGOs in Kenya have a satisfactory performance of humanitarian supply chain management.

Jane Kiende Kinyua (2013) studied the status and factors that affect humanitarian supply chain performance in Kenya. The study design was descriptive and the variables have been used to measure humanitarian supply chain organizational factors, socio-economic factors, environmental factors, supply chain decisions, government situational factors and funding status. The performances were measured by using four variables of supply chain responsive, flexible, reliable and meets deadlines. The result was proposed by using cross tabulation and chi-square revealed that infrastructure, environment, government bureaucracy, procurement delays and financial limitation. The result ware deployed statistically and shows significant association with supply chain performance.

Peter Nyandega Agwata (2014) studied that the supply chain management challenges and supply chain performance of humanitarian organizations in Kenya. The study were descriptive research design and employed the key performances indicators; supply chain reliability, cost, collaboration, timeliness and improvement to measure the performance of humanitarian supply chain performance. The finding showed that the supply chain management challenges highly contributed to supply chain inefficiency in delivery of the relief supplies and negatively affected the operations of humanitarian supply chain performance.

Research on humanitarian supply chain performance in IRC

Ira Haavisto (2014) studied performance in humanitarian supply chains of efficiency through a contingency approach in IRC. The study was made in IRC head quarter based in NewYork and case study was used and data was gathered with mixed methods over a 2 year period. Initial interview were conducted in August 2010, a second set of interviews in April 2012 and a survey conducted in October 2012.

The aim of the study was to deepen the understanding of supply chain performance objectives in the humanitarian context through a contingency approach. Thus, the aim was further to take in consideration the context when analyzing humanitarian supply chain performance and to identify indicators that could measure humanitarian supply chain performance in IRC.

The finding is efficiency in humanitarian supply chains is not understood as the traditional productivity measure, but rather as a function of 'within expected time and budget'. Furthermore, staff analyzed in case organization relate efficiency to planning, quality and accountability, more so than to time and cost efficiency, although cost and time efficiency seems to be the variables through which to measure supply chain performance.

Although the different in the performance frameworks have been studied and published, all have a common denominator of including efficiency as an elementary measurement of performance. In their literature review on humanitarian performance measurement, Abidi and Klump (2013) recognized the presence of the efficiency measurement studies acknowledge efficiency either from a cost or time perspective (Davidson, 2006; Beamon and Blacik, 2008; Blecken *et al.*, 2009). Thus, this study suggested that the humanitarian supply chain performance should also be measured as Efficiency, Quality (of process), Integration, Innovation, Accountability and Reliability.

2.3. Conceptual Framework of the Study

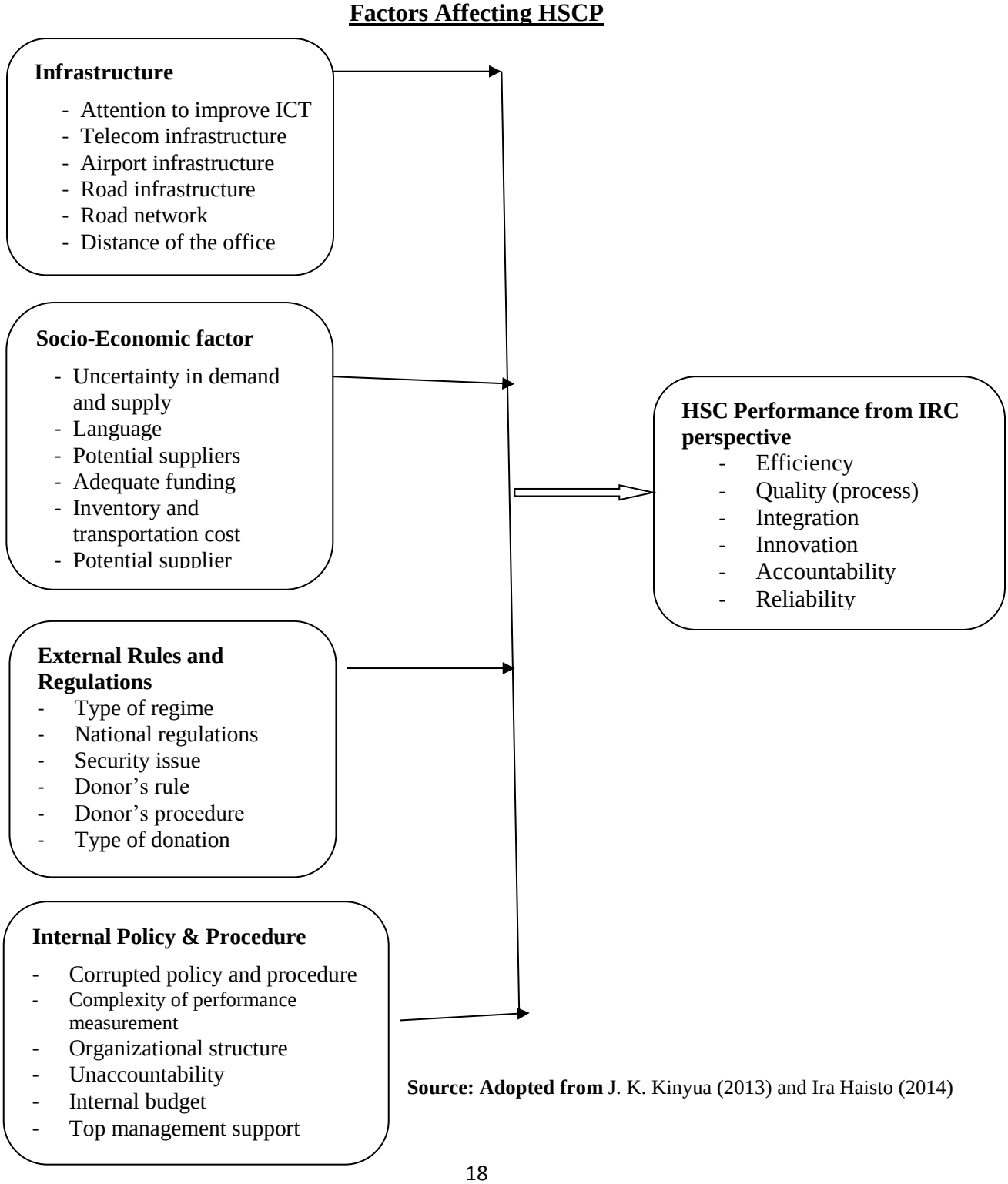
Miles *et al.*, (2007) defined a conceptual framework as a visual or written product, one that "explains, either graphically or in narrative form, the main things to be studied -the key factors, concepts, or variables -and the presumed relationships among them". A variable is a measurable characteristic that assumes different values among subjects. The focus of this study is to assess the factors that affect the humanitarian supply chain performance of IRC-Ethiopia.

The independent variables were investigated with a view to find their effect on supply chain performance in humanitarian response of IRC-Ethiopia. This is represented in figure 2.1. The model demonstrates that a number of factors are associated with the supply chain performance.

These include; infrastructure, socio-economic, internal policy and procedure and external rules and regulations.

The variables of each are outline in the framework are as follows;

Figure 2.1. Conceptual Framework



Source: Adopted from J. K. Kinyua (2013) and Ira Haisto (2014)

2.4. Identified literature gaps

The above empirical literature shows that different researchers have different ideas on factors affecting supply chain performance in humanitarian organization like, strategic supplier relationship, contract management, information sharing, socio-economic factors, environmental factors, supply chain decisions, government situational factors, funding status, supply chain reliability, cost, collaboration, timeliness, improvement and development etc. In IRC Ethiopia, different studies ware made with different topics and concerns by few Logistics and Supply chain staff members but not related with this topic.

Ira Haavisto (2014) ware made a study with the topic "performance in Humanitarian Supply Chains" it was case study made in IRC head quarter. The aim of the study was to deepen the understanding of supply chain performance objectives in the humanitarian context through a contingency approach.

The finding was efficiency in humanitarian supply chains is not understood as the traditional productivity measure, but rather as a function of 'within expected time and budget'.
Therefore by identifying the gaps, the researcher tries to assess the specific areas of findings on the factors that affect the humanitarian supply chain performance of IRC particularly in Ethiopia office. Due to the fact that the organization made some evaluation on the supply chain performance and needs research and concrete findings on the subject matter.

CHAPTER THREE
METHODS OF THE STUDY

This chapter presents the methods and modality that were used while collecting data on factors affecting humanitarian supply chain performance at IRC. This chapter is structured into description of the study area, research approach, research design, methods of data collection, sources and research instruments, validity and reliability, ethical consideration and data analysis.

3.1. Description of the Study Area

The study had conducted had been conducted in department of Logistics and Supply Chain Management of IRC-Ethiopia program because the researcher is currently working in Logistics and supply chain management section of the organization and have the knowledge of the activities exercised in this section as a supply chain officer. The study assess the factors that affect the supply chain performance and contribute for the organization with new ideas on supply chain performance area. IRC-Ethiopia has main office in Addis Ababa city and has seven field offices located in Shire, Dollo, Jijiga, Hawassa, Adama, Gambella and Assosa. Therefore, the prominent area for the study is department of Logistics and Supply Chain Management, operating throughout the country offices.

3.2. Research Approach

In support of Sale *et al.* (2002), on Wuegbuzie and Leech (2006) identify the following rationales for mixing qualitative and quantitative approaches: participant enrichment, instrument trustworthiness, treatment integrity and significance enhancement. Therefore, the study adopts the mixed method approach to draw from the strengths and minimize the weaknesses of the quantitative and qualitative research approaches and it allows triangulation of findings, which can strengthen validity and increase the utility of the study.

Quantitative research was used in the study in order to classify features, count them, and construct statistical models in an attempt to explain what is observed while the qualitative

approach supports the researcher to complete detailed descriptions, describe magnitude and distribution of changes in performance of humanitarian supply chain operation by using self-administered questionnaire. In addition to that it gives an in depth understanding of the variable context in relation to humanitarian supply chain performance by using semi-structured in-depth interview.

3.3. Research Design

The goal of a sound research design is to provide results that are judged to be credible therefore descriptive and explanatory research design was used for the study as it had merits for such a variable having no control and only going to report and explain what is happening (Wuegbuzie and Leech, 2006).

Explanatory research design was used in order to focus and explain the aspects of the study in a detailed manner. Even though it doesn't give some conclusive evidence, it helps the researcher in understanding the problem and explore the study more efficiently. Descriptive were used to describe the mean outputs.

Census was used for the study since the population in the study were not many and not difficult to control.

3.4. Population and Sampling

The targeted research participants were selected from Logistics and Supply Chain Department of IRC specifically from (storekeepers, supply chain assistants, transport officers, supply chain officers, senior procurement officers, senior transport officers, senior warehouse officers, supply chain manager, assistant supply chain coordinator and supply chain coordinator). The respondents of the study consist of 110 staffs from Logistics and supply chain operation throughout Ethiopia (according to HR department of the organization).

Accordingly, census method was used in order to get sufficient information on factors affecting humanitarian supply chain performance of the case organization.

3.5. Methods of data collection, sources and research instruments

The data sources are both primary and secondary. The primary data were collected by using questionnaires and interview from the Logistics and supply chain management staffs. The secondary data was from internal sources of IRC-Ethiopia manual, reports and related documents to supplement the data getting from primary sources.

The data collection instrument, for collecting the primary quantitative data were a self-developed questionnaire containing self-assessment items measured on the 5-point Likert type of scale strongly disagree, disagree, neutral, agree, strongly agree and using semi-structured interview.

The questionnaires were distributed by using the hard copy for head office staff and email to field office staffs. Email communication helps the researcher to reach all respondents especially for those are not easily accessible because of the remote geographical area of respondents. Semi-structured interview were used for Assistant supply chain manager of Logistics and Supply chain department who is found in main office located in Addis Ababa, because the main transaction and challenges are handled in this office.

3.6. Validity and Reliability of Instruments

All measurements, especially measurements of behaviors, opinions, and constructs are subject to fluctuations (error) that can affect the measurement's reliability and validity. Therefore Reliability and Validity are important concepts in research as they are used for enhancing the accuracy of the assessment and evaluation of the research work.

Face validity and content validity test were used in order to test the validity of the instrument. It was important that the variable and questions that represents the issue they are supposed to measure. For that matter the researcher were deploy the whole processes of the research work based on the research questions, objectives, and theories that helps to confirm the validity of the study.

In order to get validity on the instrument, pilot sample was undertaken consisted of 15 respondents in order to know how appropriate, understandable and practical the instrument is. The questionnaires were distributed to selected Logistics and supply chain staffs, professionals & management bodies. So that it makes the research results dependable and credible.

The most common technique used to assess the scales reliability and stability is use of the Chronbach Alpha. It should be above 0.70 to produce a reliable scale and any scale with Chronbach Alpha less than this standard should be eliminated (Sekaran, 2005).

*Table 3 1**: Reliability Statistics*

	Variable	Cronbach"s Alpha Value	Items Cronbach"s Alpha
1	Infrastructure	.790	6
2	Socio-economic factor	.744	6
3	External rules and regulations	.824	6
4	Internal Policy & Procedure	.864	6
5	Humanitarian supply chain performance	.766	6

Source: Own survey 2018

3.7. Ethical consideration

There are a number of key phrases that describe ethical protections in business research to protect the rights of their research participants. The following ethical considerations used in the study:

- The principle of **voluntary participation** requires that people not be forced into participating in the research. Closely related to the notion of voluntary participation is the requirement of **informed consent**.
- The study were not put participants in a situation where they might be at **risk of harm** as a result of their participation.

- The study guarantees the participants **confidentiality** that identifying information have not be made available to anyone who is not directly involved in the study
- The study also keeps the participant identity confidential.

3.8. Data analysis and Presentation

The data analysis was done using Microsoft Excel and SPSS computer package using descriptive statistical tools mainly frequency, percentage and standard deviation technique.

Correlation coefficient was used for quantitative data in order to identify the relationship between the variables (dependent and independent). In addition, Liner Regression analysis was used to measure how strong a relationship between dependent and independent variable.

Content analysis were used to analyze qualitative data captured in the questionnaire and interview to aid in making inferences by systematically and objectively to identify specific characteristics of information and used to support the results get from quantitative analysis.

Finally, the results were presented by using tables then discuss the findings with existing literature.

CHAPTER FOUR
RESULTS, DISCUSSION AND INTERPRETATION

This chapter presents the data analysis collected from seven filed offices and head office logistics and supply chain division of IRC. The findings were analyzed and presented in the form of frequency tables, cross tabulations, correlation and regression analysis. The analysis and interpretation of data was guided by the research objectives from which a discussion of findings has been made.

4.2. Response Rate

The study was census which targeted eight supply chain offices throughout Ethiopia namely Assosa, Addis Ababa, Hawassa, Dollo, Jigjiga, Gambella, Shire, Adama. The study administered 110 questionnaires to supply chain staffs located in the above mentioned field offices and 94 of them complete and return the questionnaires. Four key informant interviews were also conducted to Assistant Supply Chain Coordinator who supervises the above mentioned filed office, in order to gather qualitative data that complements the quantitative data from the questionnaire. The response rate for the study was 85percent of the total respondents were reached. The response rate was very good and it conforms to assertion by Garg & Kothari (2014) that a response rate greater than 70percent is very good.

4.3. Demographic Profile of the Respondents

This section discusses the age, sex, occupation and educational status of respondents

Table 4 1: Demographic profile of respondents

		Frequency	Percent
Educational Level	Diploma	8	8.5
	BA	70	74.5
	Masters	16	17
Total		**94**	**100**
Age	20-30	19	20.2
	31-40	60	63.8
	>40	15	16
Total		**94**	**100**
Gender	Female	29	30.9
	Male	65	69.1
Total		**94**	**100**
Year Stayed	<2yr	7	7.4
	2-5yr	34	36.2
	5-10yr	30	42.6
	>10yr	13	13.8
Total		**94**	**100**
Field Office	Addis Ababa	33	35.1
	Hawassa	7	7.4
	Adama	8	8.5
	Jigjiga	14	14.9
	Gambella	12	12.8
	Shire	8	8.5
	Dollo	8	8.5
	Assosa	4	4.3
Total		**94**	**100**

Source: Own survey 2018

Table 4.1, shows the respondents educational level; 8.5 % of respondents had diploma, 74.5% of respondents had first degree and the rest 17% of respondents had second degree and above.

The result indicates that most of the respondents were qualified and professionals so that they can easily understand and provide their opinion on research questionnaire. In addition to that, they are professionals and can overcome the challenges of the factors that affect the humanitarian supply chain performance and score the performance at significant level through motivation.

With regard to the question given to respondents about their respective field office, 35.1 % of the respondents were from Addi Ababa, 7.4 % of the respondents were from Hawassa, 8.5 % of the respondents were from Adama, 14.9 % of the respondents were from Jigjiga, 12.8 % of the respondents were from Gambella, 8.5 % of the respondents were from Shire, 8.5 % of the respondents were from Dollo, while 4.3% of the respondents were from Assoa.

The result indicates that respondents from various filed offices can have different practice, experience, knowledge and exposure in humanitarian supply chain practices and they can provide unique view of humanitarian supply chain specific factors and humanitarian supply chain performance.

The respondents were also asked to indicate their Age group from the category. The results shows that 20.22 % of the respondents were 20-30 years old, 63.8 % of the respondents were 31-40 years old and the rest 16 % of the respondents were over 40 years old.

This shows that the majority of the respondent's age group is categorized among young and productive age groups. This indicates that, the employees of supply chain department support the organization without tedious of the working situation.

The respondents were asked to indicate their sex. The result shows that 69.1 % of the respondents were male while 30.9 % of the respondents were female.

This shows that the majority of the respondents were male; the researcher thought the reason behind this might be the majority of the female employees are not willing to go out to field offices fearing of hardships and insecurity.

The table also presents, 7.4 % of the respondents had less than 2 years of work experience, 36.2% of the respondents had 2-5 Years of work experience and 42.6% of the respondents had 5-10 Years of work experience while 18.8 % of the respondents had more than 10 Years of work experience in current organization.

The result indicates almost all of the respondents had sound experience in HSCM of their respective organizations so that they can give sound and reliable information to the research question. In addition to that, the employees of supply chain department are well experienced and capable to mitigate the effect of factors on the performance of supply chain operation

4.4. Descriptive Analysis for Factors Affecting SC Performance

This section discussed factors affecting supply chain performance identified from analysis. The section is divided into four outputs. It begins with Infrastructure variables affecting HSC performance in IRC followed by External Rules & Regulations, Internal Policy & Procedure and Socio-Economic variables affecting HSC performance.

Table 4 2: Infrastructure variables affecting supply chain performance

Indicators	SDA	DA	N	A	SA	Mean	Stdv.
Significant attention to improve its ICT resources	9	21	22	30	12	3.15	1.194
Telecom infrastructure throughout the country offices	0	36	24	32	2	3.00	.904
Airport infrastructure throughout the remote country offices	1	10	7	56	20	3.89	.898
Road infrastructure	2	22	11	47	13	3.51	1.055
Road network	1	20	11	37	25	3.69	1.117
Distances of respective offices	3	11	6	54	20	3.82	1.005
Mean Average						**3.51**	

Source: Own survey 2018

The study made in Kenya by Thomas N. (2012) shows that, poor infrastructure affects humanitarian supply chain and the study responses mean was 2.35. However the mean result implies, the effects of infrastructure were low.

The finding of this study on the above table 4.2 shows that, the majority respondents agreed that the major factors affecting among infrastructure are lack of adequate airport infrastructure throughout the remote country offices (3.89mean score), lack of adequate road infrastructure (3.51mean score) that lack of open and conducive traffic flows and road accesses (3.69mean score), distance for respective field offices (3.82 mean score). In relation to this, the Assistant coordinator says *"the distance of our field offices is the reason for not to use material and staff consolidation."* However, the respondents were not sure whether lack of attention to improve its ICT resources (3.15 mean score) and lack of adequate telecom service throughout the country offices (3.00 mean score) were affects or not.

The interview response get from assistant coordinator told that *"infrastructure is the challenge while emergency responses are carried out; our vehicles are tired of break downs and rental partners also exhausted due to repetitive compliance".* This suggests that, infrastructure is a significant driver of humanitarian supply chain performance. Since infrastructure supports the supply chain responsiveness, it can impact operational performance.

From the above findings from quantitative and qualitative data, infrastructure affects the humanitarian supply chain performance of IRC. Especially lack of adequate air transport, road infrastructure, road network, and distance of respected field offices affects the integration of supply chain unit not to use resource utilization (time, staff and money) properly. Reliability to respond for the needs can be affected so that it decreases the efficiency (meeting money and time budget) of supply chain operation. This scenario leads the supply chain unit unaccountable in front of donors and beneficiaries.

On the other hand, the effect of ICT and telecommunication is not much worth. It is supported by interview response by saying that *"IRC always advocates for change especially for ICT, before*

three years we have been using 'prologs' an offline system then transferred to Budget Versus Actual (BVA) an online system and now we are on the way to implement ERP which is called 'Integra', by IRC staff. The system which interconnects program unit, supply chain unit and finance unit and minimize paper works".

Table 4 3: Socio-Economic variables affecting supply chain performance

Indicators	SDA	DA	N	A	SA	Mean	Stdv.
Demand and supply	3	11	6	54	20	4.01	0.674
Market economy	0	10	13	48	23	3.89	0.632
Culture and languages of the working environment	1	25	8	49	11	3.47	0.764
Local potential suppliers	13	25	26	26	4	2.82	0.663
Adequate funding	4	24	22	39	5	3.18	0.697
Inventory and transportation cost	0	12	9	55	18	3.84	0.752
Mean Average						**3.54**	

Source: Own survey 2018

The study by Jane K. (2013) shows that, majority of the respondents considered socio-economic as one factor for challenge of supply chain performance in humanitarian organizations in Kenya.

According to the findings in Table 4.3, the majority of the supply chain staffs agreed regarding to the effects of uncertainty of demand and supply (4.01 mean score), the interview response also indicates that, implementing the Master Purchase Agreement (MPA) also face a problem due to repetitive request of price amendments from the suppliers and failure of supply by agreed prices and schedules. In addition to that getting quality of product in the current market is another issue.

Instability of market economy is the other challenge (3.89 mean score), culture and languages of the working environment (mean=3.47), demand uncertainty (3.84 mean score). On the other hand, it was not clear whether or not lack of local potential supplier (2.82 mean score) and lack of adequate funding (3.18 mean score) are challenge or not.

This shows that socio-economic factors are affect the HSCP. The finding also support the work of other researcher (Jane Kiende Kinyua, 2013) and other scholars (Altay et al., 2009; Dowty and Wallace, 2010; Kandiyoti, 2007; Leon et al., 2009; Maon et al., 2009). In a well-developed economy, some basic supplies can be purchased from local suppliers, and staff can be hired locally for supply chain activities. In a less developed context, all supplies have to be imported and most tasks must be managed by foreign staff.

Based on the above analysis, uncertainty of demand and supply, instability of market economy, culture and languages of the working environment and high inventory and transportation cost are indicators of socio-economic factors that affects the performance of humanitarian supply chain of IRC. This affects the quality of service (SOP), innovation that is not to give attention for development, fails efficiency that is not to meet money and time budget, decrease reliability that is not giving dependable service. Finally, this all leads to unaccountability which is failure of supply chain performance.

However, absence of local potential suppliers and lack of adequate funding are not a major issue for supply chain unit. The finding collected from interview response shows that, when there is lack of local potential supplier, they forced to import from abroad. However, for major items there are lot of producers and distributors but currently, they are affected by foreign currency problem to import raw materials. She added that, currently we do not have funding problem because IRC has different donors like, UNHCR, USAID, UNICEF and others based on different projects.

***Table 4 4**:* External rule and regulation variables affecting supply chain performance

Indicators	SDA	DA	N	A	SA	Mean	Stdv.
Type of regime affect the operation of IRC	4	25	17	37	10	3.26	1.102
National regulations	5	11	13	44	21	3.69	1.107
Security issues throughout the country office	3	9	12	42	28	3.88	1.046
Complexity of Donors' rule on how the funds are to be used	4	5	15	53	17	3.80	.798
Complexity of procurement procedure from donors	3	14	10	50	17	3.68	1.039
Donation as per the required	1	4	23	51	15	3.79	.949
						3.68	

Source: Own survey 2018

The study made by Grace Mwanjumwa and Dr. Fridah Thuri Simaba, (2015) show that, External Rules and Regulations (Donors and Government) affect the performance of Humanitarian supply chain in ICRC in Kenya the mean result was 3.30 and reflects moderate.

The effects of external rules and regulation on the performance in Logistics and supply chain department at IRC, participant's opinion was as follows; they are agreed that national regulation has an effect (3.69 mean score), the security issue throughout the country office (3.88 mean score), complexity of donors' rule on how the funds are to be used (3.80 mean score), complexity of procurement procedure from each donor (3.68 mean score) as well as lack of donation as per the required (3.79 mean score). However participants are not sure whether there is type of regime affect or not (3.26 mean score). Therefore external rules and regulation affects the HSCP of IRC with total mean 3.68, the finding also supported by theoretical literature by (seekins, 2009: McLachlin & Larson, 2011: Van Wassenhove, 2006).

From the above analysis, national regulation, security issue, donor's rule on use of funds, procurement procedure of the donors and lack of donation as per the required are external rules and regulation indicators that affect the performance of humanitarian supply chain operation of IRC. This indicates that, it hampers integration of donation in to different projects and create difficulty for quality of process because it is difficult to use consistent and standard operating

procedure (SOP) due to interference of donors on how and for whom project to be use. Therefore it decreases innovation for development and efficiency to meet time and budget allocated.

Nevertheless, the effect of type of regime is not much. The qualitative response also indicates that even if there is some regulation by government especially "Charity", the situation is supportive for humanitarian organization especially for whom involved in relief and rehabilitations activities like IRC.

Table 4 5: Internal policy and procedure variables affecting supply chain performance

Indicators	SDA	DA	N	A	SA	Mean	Stdv.
Policy and procedure	41	41	6	5	1	1.77	.873
Performances measurement	19	28	8	32	7	2.79	1.311
Organizational structure and system in supply chain department	15	27	16	32	4	2.82	1.191
Accountability of Supply chain employees	17	29	10	31	7	2.81	1.281
Internal budget constraints	14	32	11	29	8	2.84	1.256
Top management support	10	14	17	45	8	3.29	1.151
Mean Average						**2.72**	

Source: Own survey 2018

The finding by Odeny A. (2015) in Kenya shows that internal policy and procedure affects the selected humanitarian operation with 88.8 percent which is highly effected.

From the above table 4.5, the effect of corrupted policy and procedure is very low (1.77 mean score), the effect of complexity of performances measurement is moderate (2.79 mean score), poor organizational structure is moderate (2.82 mean score), unaccountability of supply chain employees is moderate (2.81 mean score), internal budget constraints also moderate (2.84 mean score) and lack of top management support had a (mean score of 3.29) which moderately affect performance. Overall the internal policy procedure moderately effect Humanitarian supply chain performance of IRC.

Therefore, internal policy and procedure do not affect integrity, quality of process, innovation, accountability, reliability and efficiency of supply chain performance. This can support to resist the challenges due to other factors and can perform a bit better on supply chain operation.

One can note and conclude that there is almost no corrupted policy and procedure. From the qualitative finding, the procedure supports high segregation of duty among supply chain personals and every supply chain personnel signs a code of conduct on a yearly bases, in addition to that, any employee can direct report to the president through email address unanimously. The interview response also supported the result by saying that "*IRC is currently trying to cope up the external challenges by capacitate staffs by giving trainings, by recruit well professionals, by taking performance measurements actions and by creating transparent management system*".

Table 4 6: HSC Performance

Indicators	SDA	DA	N	A	SA	Mean	Stdv.
Challenge for supply chain division to use resource integration (time, staff and money)	0	16	22	55	1	3.44	.784
Supply chain activities are against Standard Operation Procedure (quality of service)	7	29	16	38	4	3.03	1.092
The supply chain operation is lack of innovation (giving attention for development)	3	17	23	30	21	3.52	1.124
The supply chain operation fails an accountability (accountable regards to donors and beneficiaries)	5	22	26	31	10	3.20	1.083
The completion of most supply chain activities fails to meet money and time budget (efficiency)	6	17	17	28	26	3.54	1.250
The supply chain operation lacks reliability (giving trustworthy or dependable service level)	9	14	18	28	26	3..53	1.276
Average mean						**3.38**	

Source: Own survey 2018

According to the findings in the above Table 4.6, there is lack of integration (3.44 mean score), lack of innovation (3.52 mean score), lack of efficiency (3.54 mean score), and lack of reliability

(3.53 mean score). However, the respondents was not sure that whither accountability (3.20 mean score), quality of service (3.03 mean score) exists or not.

The study finding made by Ira Haavisto (2014) indicates that, IRC's Humanitarian supply chain performance objectives are focused on efficiency, quality of service, reliability, integration, innovation, and accountability (process adherence and transparency). All are supply chain performance objectives and key indicators that can serve as a mediator between different levels of goals and actors, since they are pre-impose long term thinking (Ira Haavisto, 2014).

The above result indicates that, the performance level of IRC's Humanitarian supply chain operation is moderate. However this does not mean that it is performing under low circumstances but needs improvement. The better controlling of internal policy and procedure supports them to better control of the other variable effects.

4.6 Inferential Statistics for factors affecting HSC Performance of IRC

4.6.1 Correlation Analysis

In this section, the researcher conducted correlation analysis in the light of each research objectives and research questions. The researcher used Karl Pearson's coefficient of correlation (or simple correlation) analysis as it is the most widely used method of measuring the degree of relationship between two or more variables. The relationship between humanitarian supply chain specific factors and HSC performance of the organizations was investigated using Pearson's coefficient of correlation analysis. This provided correlation coefficients which indicated the strength and direction of relationship. The p-value also indicated the probability of this relationship's significance.

Table 4 7: Correlation coefficient

Correlations						
		Infrastructure Factor	Socioeconomic Factor	External rules and regulations	Internal policy and procedure	HSCP Performance
Infrastructure Factor	Pearson Correlation	1	.558**	.373**	.473**	.627**
	Sig. (2-tailed)		.000	.000	.000	.000
Socioeconomic Factor	Pearson Correlation	.558**	1	.527**	.583**	.787**
	Sig. (2-tailed)	.000		.000	.000	.000
External rules and regulations	Pearson Correlation	.373**	.527**	1	.412**	.642**
	Sig. (2-tailed)	.000	.000		.000	.000
Internal policy and procedure	Pearson Correlation	.473**	.583**	.412**	1	.779**
	Sig. (2-tailed)	.000	.000	.000		.000
HSC Performance	Pearson Correlation	.627**	.787**	.642**	.779**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed). Total response = 94						

Source: Own survey 2018

According to Table 4.7, the respondent's response about the relationship between dependent and independent factors. Based on that, there is a strong relationship between infrastructure and HSCP with correlation coefficient of (r=.531) further more socio-economic and HSCP also had strong relationship with correlation coefficient (r=.787) in addition to that there was strong relationship between External Rules and Regulation and HSCP with correlation coefficient (r=.642), there is also strong relationship between Internal Policy and Procedure and HSCP with correlation coefficient (r=.779).

4.6.2 Regression Analysis

The study applied the statistical package for social sciences (SPSS V 20.0) to code, enter and compute the measurements of the multiple regressions for the study. Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (HSC performance of IRC) that is explained by all the independent variables.

4.6.2.1 Multi Collinearity Test

Multi Collinearity test of independent variables was conducted to check whether the assumptions for regression analysis are met or not. According to Mendard, (1995) Tolerance should be more than 0.2 and VIF (Variance Inflation Factor) should be less than 10 (Myers, 1990).

Table 4 8: Multi collinearity test of independent variable

Independent Variable	Collinearity Statistics	
	Tolerance	VIF
Infrastructure	0.651	1.537
Socioeconomic	0.495	2.019
External Rules and Regulation	0.701	1.426
Internal Policy and Procedure	0.618	1.619

Source: Own survey 2018

The result in table-4.8 above shows that the collinearity between independent variables except socioeconomic, there was no series problem. Since the value of tolerance for all independent variable is greater than 0.1 and all VIF is less than ten (VIF<10) except socio-economic. Therefore, the assumptions for regression analysis for the majority variable are met.

4.6.2.2 Model Summary

The independent variables that were studied, explains 83.4% of the supply chain performance of humanitarian organizations in IRC as represented by the R^2. Therefore it means that other factors that affect HSC performance are not studied in this research contribute 16.6% of the HSC performance of IRC. Therefore, further research should be conducted to investigate the other factors affecting the HSC performance by 16.6%.

Table 4 9: Model Summary

	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.
Model Summary	0.913	0.834	0.827	0.1977276	.000

Source: Own survey 2018

4.6.2.3 ANOVA Results

The below table 4.9 is to test the fitness of the model in estimating the effects of the independent variables on the HSC performance at IRC, two way ANOVA was carried out where the statistics (F) =111.93, p-value=0.000 was realized as is shown in table 4.14 below: implying that the model was significantly used in predicting the effects of independent variables on HSC performance of IRC.

Table 4 10: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	17.505	4	4.376	111.938	.000
Residual	3.48	89	0.039		
Total	20.985	93			

Source: Own survey 2018

4.6.2.4 Coefficient of Determination

Multiple regression analysis was conducted as to determine the relationship between factors affecting humanitarian supply chain performance of IRC.

As per the SPSS generated in table 4.10 below, the equation is computed as follows

(**Y =** β0 + β1X1 + β2X2 + β3X3 + β4X4 +ε) becomes:

(**Y**= 1.192+0.156X1+ 0.334X2+ 0.238X3 +0.412X4+ε).

The model revealed that there the independent variables namely; Infrastructure, Socio-economic, External Rules and Regulations and Internal Policy and Procedures had significant effects on HSC performance of IRC Ethiopia.

Table 4 11: Coefficient Determination

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.192	0.226		5.27	0.000
Infrastructure	0.195	0.067	0.156	2.921	0.004
Socioeconomic factor	0.419	0.077	0.334	5.449	0.000
External Rules and Regulation	0.251	0.054	0.238	4.611	0.000
Internal Policy and Procedure	0.441	0.059	0.412	7.503	0.000

Source: Own survey 2018

According to the findings, the regression equation established by taking all factors to be constant at zero, supply chain performance of IRC will be 1.192. The data findings also shows that taking all other independent variables at zero, a unit decrease in effect of infrastructure will lead to 0.156 increase in HSC performance of IRC; a unit decrease in socioeconomic effect lead to a 0.334 increase in HSC performance; a unit decrease External Rules and Regulation lead to a

0.238 increase in HSC performance; a unit decrease Internal Policy and procedure effect leads to a 0.412 increase in HSC performance of IRC Ethiopia.

This infers that socioeconomic contribute most to the HSC performance followed by Internal policy and procedure, External Rules and Regulation and Infrastructure respectively.

At 5% level of significance and 95% level of confidence, Infrastructure had 0.004 level of significance while the rest had 0.000 level of significance; hence all are the most significant factors affecting the HSC performance of IRC.

4.7 Relationship between independent variable with humanitarian supply chain performance

Table 4 12: Infrastructure variable with HSCP

Infrastructure and Performance		Integration	Quality of process	Innovation	Accountability	Efficiency	Reliability
Attention for ICT	Pearson Correlation	.137	-.018	-.065	.191	.065	-.117
	Sig. (2-tailed)	.188	.860	.535	.065	.534	.259
Adequate telecom	Pearson Correlation	.180	.087	-.012	-.094	.086	-.011
	Sig. (2-tailed)	.083	.404	.912	.369	.409	.913
Adequate airport	Pearson Correlation	**.292****	.037	**.268****	-.169	**.253***	.169
	Sig. (2-tailed)	.004	.723	.009	.103	.014	.104
Adequate road infrastructure	Pearson Correlation	.093	.060	**.301****	-.016	**.203***	.072
	Sig. (2-tailed)	.372	.563	.003	.876	.049	.492
Adequate road network	Pearson Correlation	-.037	.176	.109	.165	-.090	.118
	Sig. (2-tailed)	.721	.090	.297	.112	.389	.257
Distance of FO	Pearson Correlation	-.001	.005	.007	.148	-.041	.181
	Sig. (2-tailed)	.993	.959	.948	.156	.695	.081
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							
N=94							

Source: Own survey 2018

Table 4.12 shows the effect of infrastructure on supply chain performance as follows, lack of adequate airport positively affect the integration by 29percent (sig. at 0.004), innovation by 27percent (sig. at 0.009) and efficiency positively affect by 25percent (sig. at .014). Lack of adequate road infrastructure positively affects innovation by 30percent (sig. at .003) and positively affect efficiency by 20% (sig at 0.49).

Table 4 13: Socio-economic variables with HSCP

Socio-economic and Performance		Integration	Quality of process	Innovation	Accountability	Efficiency	Reliability
Uncertainty of demand	Pearson Correlation	.127	-.019	.185	-.053	.143	.023
	Sig. (2-tailed)	.224	.853	.074	.615	.168	.824
Market economy	Pearson Correlation	**.222***	-.030	**.222***	-.057	.043	.005
	Sig. (2-tailed)	.031	.770	.031	.585	.682	.959
Language	Pearson Correlation	.081	**.270****	.063	.130	-.073	.020
	Sig. (2-tailed)	.438	.009	.549	.210	.486	.846
potential supplier	Pearson Correlation	.197	.014	**.285****	.132	-.096	**.240***
	Sig. (2-tailed)	.056	.890	.005	.205	.356	.020
adequate funding	Pearson Correlation	.161	.072	.148	.084	.019	.157
	Sig. (2-tailed)	.121	.489	.155	.423	.858	.130
inventory and transportation cost	Pearson Correlation	.099	-.050	.085	-.027	.174	**.401****
	Sig. (2-tailed)	.344	.630	.415	.797	.093	.000
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							
N=94							

Source: Own survey 2018

The above table 4.13 show that instability of market positively affect integration by 22percent (sig. at 031) and positively affect innovation by 22percent (sig. at .031), language of the working environment positively affect quality of process by 27percent (sig. at .009), lack of potential supplier positively affect innovation by 29percent (sig. at .005) and positively affect reliability by 24percent (sig. at 0.020). In addition to that, inventory and transportation cost positively affect reliability by 40% (sig. at .000). However the effect of uncertainty of demand and adequate funding are not significant.

Table 4 14: External rules and regulation variable with HSCP

External rules and Performance		Integration	Quality of process	Innovation	Accountability	Efficiency	Reliability
Type of regime	Pearson Correlation	-.071	.082	-.024	-.117	**.276****	-.092
	Sig. (2-tailed)	.498	.435	.816	.263	.007	.380
National Regulations	Pearson Correlation	**.246***	.026	**.214***	.013	.070	.194
	Sig. (2-tailed)	.017	.803	.038	.898	.502	.061
Security issue	Pearson Correlation	.117	.069	**.222***	.155	-.086	.104
	Sig. (2-tailed)	.261	.507	.031	.136	.412	.320
Command on spending funds	Pearson Correlation	.132	**.239***	.130	.135	-.113	-.043
	Sig. (2-tailed)	.207	.021	.215	.196	.281	.684
donor's procurement procedure	Pearson Correlation	-.093	.142	.084	-.076	-.035	.014
	Sig. (2-tailed)	.373	.173	.420	.464	.735	.892
Lack of donation as per the required	Pearson Correlation	.020	-.056	**.209***	.048	-.124	**.465****
	Sig. (2-tailed)	.851	.594	.044	.643	.236	.000
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							
N=94							

Source: Own survey 2018

The above table 4.14 indicates that, type of regime positively affect efficiency by 28percent (sig. at .007). National regulations positively affect integration by 25percent (sig. at .017) and positively affect innovation by 21percent (sig. at .038). Security issue positively affect innovation by 22percent (sig. at .031). Command on spending funds positively affect quality of process by 24percent (sig. at .021). Donor's procurement procedure positively affect 21percent (sig. at .044) and reliability by 47percent (sig. at .000).

Table 4 15: Internal policy and procedure variable with HSCP

Internal Policy and Performance		Integration	Quality of process	Innovation	Accountability	Efficiency	Reliability
Policy and procedure	Pearson Correlation	.094	**.211***	.137	-.054	.050	-.119
	Sig. (2-tailed)	.366	.041	.189	.607	.633	.254
Performance measurement	Pearson Correlation	.171	.065	.143	.076	**.208***	.155
	Sig. (2-tailed)	.099	.534	.169	.469	.044	.136
Organizational structure	Pearson Correlation	.199	.195	.041	.071	-.072	**.248***
	Sig. (2-tailed)	.054	.060	.695	.496	.491	.016
Unaccountability of employees	Pearson Correlation	.041	.043	**.314****	.199	.018	.010
	Sig. (2-tailed)	.695	.682	.002	.054	.867	.923
Internal budget constraints	Pearson Correlation	**.216***	.004	.110	**.243***	.043	.158
	Sig. (2-tailed)	.036	.971	.291	.018	.681	.127
Top management support	Pearson Correlation	.233	.078	.099	-.084	.208	.122
	Sig. (2-tailed)	.024	.454	.342	.419	.045	.240
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							
N=94							

Source: Own survey 2018

From the above table 1.15, corrupted policy affects quality of process by 21percent (sig. at 0.41). Complexity on performance measurement positively affects efficiency by 21percent (sig at .044). Organizational structure positively affects reliability by 25percent (sig at .016. Unaccountability

of employee positively affects innovation by 31percent (sig. at .002). Internal budget constraint integration by 22 percent (sig. at .036) and accountability by 24percent (sig. at .018). Lack of top management support positively affect integration by 23percent (sig. at .024) and efficiency by 21percent (sig. at .045).

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

In this chapter, the main findings with regards to the research questions are summarized and conclusions are presented based on the findings of the study. Furthermore, the strengths and limitations of this thesis are considered and suggestions for further research into higher education were presented. From the foregoing analysis, the study has made conclusions and recommendation in line with various objectives of the study on factors affecting humanitarian supply chain performance of IRC-Ethiopia.

5.1 Summary of Findings

Based on the findings of this study, there is paying moderate attention to improve its ICT (mean 3.15), moderate telecom infrastructure (mean 3.00), lack of airport infrastructure (mean 3.89), road infrastructure (mean 3.69), poor road network (mean 3.69) and distance of respective offices (mean 3.82) have an impact towards the performance of HSC of IRC Ethiopia. The existence of a well-developed road infrastructure will facilitate the logistical operations, while a poor road network tends to disrupt and slow down the distribution of relief items in addition to that, the presence of an airport close to the disaster location will facilitate the delivery of relief aid.

From socio-economic indicators, uncertainty of demand and supply (mean 4.01), instability of market economy (mean 3.89), culture and languages of the working environment (mean 3.47) and high inventory and transportation cost (mean 3.84) affects the performance of HSC operation while the absence of local potential suppliers (mean 2.82) and adequate funding (mean 3.18) has moderate effect on supply chain performance.

The government factors, such as the national regulations toward relief organizations (mean 3.26) and high security issue (mean 3.88) are the effects from government factors while type of regime remain moderate (mean 3.26). Donor's factors, such as type donation might be what is not required (mean 3.79), donors may dictate on how the funds are to be used (mean 3.80) and

complexity of procurement procedure from donors (3.68) are the effects on humanitarian supply chain performance of IRC.

Based on the findings of this study, complexity of performance measurement (2.79), corrupted policy and procedure (1.77), poor organizational structure (2.82), unaccountability of employees (2.81), internal budget constraints (2.84), and lack of top management support (3.29) has no effect on the performance of HSC in the case organization.

The performance objectives were reliability, accountability, innovation, integration, efficiency and quality of process and on the findings of the study shows that the performance of Humanitarian supply chain in IRC is moderate but not satisfactory.

5.2 Conclusion

The study required to establish the status of humanitarian response and factors affecting its supply chain performance of IRC-Ethiopia. The study was guided by four specific objectives; to assess the effect of socio-economic factor on humanitarian supply chain performance, to examine the effects of infrastructure on humanitarian supply chain performance, to assess the effects of external rules and regulation on humanitarian supply chain performance and to examine the effects of internal policy and procedure on humanitarian supply chain performance.

In order to come up at various conclusions, the study conducted quantitative and qualitative data analysis on the department of Logistics and Supply Chain department at IRC-Ethiopia. From the distributed 110 questionnaires, only 94 were responded to a number of questions related to their humanitarian supply chain operations including their handling of the supply chain and their experiences with various factors.

- The study concludes that infrastructure affects the humanitarian supply chain performance. The study also deduces that socio-economic factor affects the HSCP of IRC and conclude that external rules and regulation sharing the effect on HSCP however internal policy and procedure have moderate impact on HSC operation of IRC Ethiopia.

- The study also highlights one of the challenge for the supply chain operation is poor infrastructure especially road and information communication technology.
- According to the study the performance of supply chain operation in IRC moderately effective and efficient against performance indicators like innovation, reliability, efficiency, quality of process, accountability and integration but not at significant level.
- The study prove that informing humanitarian supply chain performance in the right context using empirical evidence from supply chain practitioners has a great significance to all stakeholders interested in the humanitarian supply chain response. The study also determine factors affecting supply chain performance in humanitarian response of IRC Ethiopia. The findings are vital as reference tools for future research on humanitarian supply chain performance.
- The study brings knowledge on what and how factors affecting the humanitarian supply chain performance of IRC Ethiopia and findings can be used by other NGOs in Ethiopia who are working on relief area.

5.3. Recommendations

Based on the finding, supply chain performance of IRC is moderate. However, it cannot be said that the supply chain operation performance was as desired, so that this needs to be addressed through an intensive effort between various stakeholders to reduce the impact of the variables and respond to the beneficiaries for the live saving and relief efforts of the operations. If the remaining questioner were responded, additional finding could be identified.

Some of the factors such as socio-economic, infrastructure and external rules and regulations require policy level advocacy that means government should take an action to instability of market through; controlling exchange rates and privilege for producers to import raw materials, to control the standards of imported and produced goods. For security issue, government should work extensively with regional government office for security of workers and aids by NGOs. For infrastructure, government is not the only responsible entity rather everyone should play significant role on the improvement and development of infrastructure. For external rules and regulations, government should assist and support for international aid workers especially who

works on relief area like IRC because lifesaving in disaster area become the most significant aid in now a days due to conflicts between nations around the world.

Internal policy and procedure require more investment in systems and more budgetary allocation from donors. Even though most humanitarian organizations are not profit making entities, they struggle with government bureaucracy to be exempted from systems, to clear the goods and even export commodities to areas of need across the border.

In order to become competitive and achieve sustainable performance in disaster relief chain operations, Humanitarian organizations have capabilities to establish or improve their supply chains that are on the internal organization factors, the study found that internal policy and procedure did not have much effect to HSCP of IRC Ethiopia.

5.4 Suggestions for Further Research

The finding of this study on performance indicators was moderate and needs improvement however additional study is needed to further identification on which performance indicator should be taking in to consideration. This study tries to see the HSCP from infrastructure, socio-economic, external rules and regulation and internal policy and procedure perspective. There is need to have the perspective of beneficiaries and donors about the performance of supply chains in order to draw conclusions from more informed stand point. This study can further be extended by covering more variable that might be affect the supply chain performances of IRC like from the other department context like finance and program units and from other humanitarian actors like beneficiary and transport agents. The impact of internal policy and procedure on HSC performance of IRC or any other Humanitarian organization can be further explored.

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ANNEX-I

Questionnaire

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
Department of Logistics & Supply Chain Management

Questionnaire to be filled by Humanitarian supply chain professionals and practitioners of IRC Ethiopia.

Dear Participant,

This questionnaire is developed for an academic effort planned for the collection of primary data that will be used to assess **Factors affecting humanitarian supply chain performance of IRC Ethiopia**, for the partial fulfillment of the requirements for the Degree of Master of Arts in Logistics and Supply Chain Management, Addis Ababa University, School of Commerce.

The information obtained from this questionnaire will be kept confidential and will be used for research purpose only. Hence, I, kindly request you to answer to the questions freely and openly to share your competence and knowledge with me.

Thank you for your cooperation!

Ferehiwot Kassahun

E-mail: Ferehiwot.Kassahun@rescue.org

Addis Ababa, Ethiopia

General Instructions:

- It is not necessary to write your name
- Try to address all the question given below
- Where answer options are available, please tick (√) in the appropriate box for all questions

PART-I: General Information

This part of the questionnaire, tries to gather some general information about the background of the respondent.

1.1. Sex:

1) Female ☐ 2) Male ☐

1.2. Age

1) Under 20 Years Old ☐ 3) 31-40 Years Old ☐

2) 20-30 Years Old ☐ 4) Over 40 Years Old ☐

1.3. Educational Qualification:

1) College Certificate ☐ 3) First Degree ☐

2) College Diploma ☐ 5) Second Degree and above ☐

1.4. Years stayed at the organization:

1) Under 2 Years ☐ 2) 2-5 Years ☐ 3) 6-10 Years ☐ 4) Over 10 Years ☐

1.5. Your Office location (Field Office):

1) Addis Ababa ☐ 2) Hawassa☐ 3) Adama ☐ 4) Jijiga ☐

5) Gambella ☐ 6) Shire ☐ 7) Dollo ☐ 8) Assosa ☐

Part II: Likert Scale questions in order to get the factors affecting humanitarian supply chain performance of IRC Ethiopia

Please thick the appropriate place to indicate the extent to which you agree or disagree on each statement as per rating; 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

Factors		Description	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree(4)	Strongly agree (5)
Infrastructure	1	Lack of paying significant attention to improve its Information Communication and technology resources					
	2	There is lack of adequate telecom infrastructure throughout the country offices					
	3	There is lack of adequate airport infrastructure throughout the remote country offices					
	4	There is lack of road infrastructure which facilitates the logistics operation					
	5	There is poor road network					
	6	Distances of respective offices have an impact towards on time delivery					
Socio-Economic	1	There is uncertainty in demand and supply					
	2	There is instability of market economy					
	3	Culture and languages of the working environment affects the supply chain performance					
	4	There is absence of local potential suppliers					
	5	There is lack of adequate funding to the facility that leads to effective supply chain operations					
	6	There is high inventory and transportation cost					
External Rules and Regulations	1	The type of regime affect the operation of IRC towards for humanitarian aid					
	2	The national regulations affect the Humanitarian supply chain operation					
	3	There is high security issues throughout the country office					
	4	Complexity of Donor's command on how the funds are to be used					

	5	Complexity of procurement procedure from each donor affects the operation of supply chain activity					
	6	Lack of donation as per the required					
Internal Policy & Procedure	1	There is Corrupted policy and procedure					
	2	There is Complexity of performance measurement					
	3	There is poor organizational structure and system in supply chain department					
	4	The supply chain employees are unaccountable for their tasks					
	5	There is internal budget constraints					
	6	There is lack of top management support					

Part II: Likert Scale questions in order to get the data on humanitarian supply chain performance of IRC Ethiopia

Please thick the appropriate place to indicate the extent to which you agree or disagree on each statement as per rating; 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

Humanitarian Supply Chain Performance		**Strongly disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree(4)**	**Strongly agree (5)**
1	The supply chain division is used resource integration (time, staff and money)					
2	Supply chain activities are according to Standard Operation Procedure (SOP) which means quality of process					
3	The supply chain operation is innovative (giving attention for development)					
4	The supply chain operation is accountable (accountable regards to donors and beneficiaries)					
5	The completion of most supply chain activity is within budget and time which means efficiency					
6	The supply chain service is reliable (that means it gives trustworthy or dependable service level)					

Part III: Open Ended Question related to factors affecting the Humanitarian supply chain performance of IRC Ethiopia

1. Please indicate other factors that can be affect the Humanitarian supply chain performance of IRC Ethiopia in your respective field offices? Explain how it affects?

_____

_____

_____

_____

Thanks a lot for your valuable time!

ANNEX-II

Interview Questions

Interview Questions for factors affecting humanitarian supply chain performance of IRC-Ethiopia

1. How infrastructure affects the humanitarian supply chain performance of IRC?
2. How socio-economic affects the humanitarian supply chain performance of IRC?
3. How external rules and regulation affects the humanitarian supply chain performance of IRC?
4. How internal policy and procedure affects the humanitarian supply chain performance of IRC?
5. Please mention other effects that should I know?

ANNIX-III

Normality Test

