Improving efficiency and effectiveness of operations in humanitarian aid logistics

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Abstract

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Humanitarian operations involve preparation, immediate response and reconstruction/recovery. The rising number of humanitarian crises and the limited number of resources to address them, means improving operations in humanitarian aid is of paramount importance. The study seeks to investigate the ways to improve the efficiency and effectiveness of operations by humanitarian organizations in responding to disaster situations. The study presents a brief background of humanitarian aid in Finland and a detailed overview of a globally applicable theoretical framework of humanitarian operations.

The study makes use of online questionnaires that were carried out among a wide range of employees and administrative staff members of humanitarian organizations across Finland. Furthermore, face-to-face interviews were conducted with humanitarian logistics experts all in an effort to explore their experiences and understand how humanitarian organizations can improve response in humanitarian aid operations.

The study suggests that the ultimate step to improving an organization`s response is having skilled humanitarian logisticians, a contingency fund to respond before seeking external resources, and coordination as well as ICT tools.

Nevertheless, government bureaucratic machinery and procedures could be a limiting factor for humanitarian organization`s operations.

Keywords
Disaster Response, Emergency Relief, Humanitarian aid, Humanitarian Disaster, Humanitarian Logistics, Humanitarian Operation

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1 Introduction

Humanitarian operations commonly involve three main phases, including preparation, immediate response and reconstruction/recovery. Humanitarian logistics is "the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials as well as related information, from the point of origin to the point of consumption for the purpose of meeting the end beneficiary's requirements" (Thomas & Mizushima 2005, 60.). Disaster relief focuses on the "design the transportation of first aid material, food, equipment, and rescue personnel from supply points to a large number of destination nodes geographically scattered over the disaster region and the evacuation and transfer of people affected by the disaster to the health care centres safely and very rapidly" (Barbarosoglu et al. 2002,118). Disaster relief refers to both sudden catastrophes, mainly natural disasters (e.g. earth, hurricanes, tsunamis, floods) and some rare made-made disasters such as terrorists acts that require very quick response, lasting for a relatively short time (Kovács & Spens 2007; Kunz & Reiner 2012) and slow-onset disasters such as drought and political crisis (van Wassenhove 2006).

Thus, effective planning and efficient delivery of humanitarian logistics during and after disasters is paramount to improving the economic and social impacts of humanitarian aid relief. This is mostly because logistics provisions accounts for 80% of costs of humanitarian aid for disaster relief (van Wassenhove 2006). Increasingly, there is need for efficiency and timely recovery in humanitarian logistic planning and delivery due to the growing number beneficiaries and impact of disasters in today's' complex human, stakeholders 'and supply chain environment. The humanitarian aid supply network is highly complex involving several humanitarian organizations such as aid agencies, NGOs, logistics service providers, military, governments, suppliers and donors (Kovács & Spens 2008, 223) with different objectives, but who must work in coordination with a common objective of saving lives and goal of disaster relief.

During disaster response actions, speed is considered principal to humanitarian relief efforts but it can lead to unrequested supplies at ports, airports and various supply chains, thereby affecting efficiency in disaster response and recovery. Thus, needs assessment, placing right orders and coordination is important in scheduling and prioritizing deliveries of most needed items. Humanitarian logisticians must have the ability to procure, warehouse, transport and receive supplies at the site of a humanitarian relief to improve the speed, efficiency and effectiveness of supply chain management in humanitarian aid (Thomas 2003, 4). However, the lack of recognition of the importance of supply chain management and logistics in humanitarian organization is a serious challenge to the speed, of logistics

and supply chain management in the context of humanitarian operations during disasters (Thomas & Kopezak 2005).In addition, because there is lack of trained humanitarian logisticians, understanding of which skills are needed in the planning and implementation of logistics operations in disaster relief by humanitarian organizations is important but challenging (Kovács et al. 2012). Lack of coordination in the humanitarian supply chain network among humanitarian actors reduces the efficiency and effectiveness of disaster response and remains a serious challenge in humanitarian logistics (Tatham & Spens, 2016). There are limited indicators that provide measureable benefits to people requiring assistance in humanitarian relief areas partly because of the complex, protracted and re-occurring nature of some man-made disasters in volatile countries.

Furthermore, the number of people affected by humanitarian crises has almost doubled in the past decade prompting a rising scale of needs and 2016 saw several deplorable humanitarian benchmarks according to the United Nations, suggesting that the rising demand for humanitarian aid and the involvement and contribution of suppliers have become even more unpredictable. Public and private donors are unpredictable, inflexible, late and financing for response and disaster recovery is never enough partly because there is often limited knowledge of location and number of people needing humanitarian aid. According to the United Nations, it is"the rising scale of disasters, persistence of protracted crisis and the interplay of new risks that have led to a continued global deficit in the capacity of Governments and humanitarian organizations to respond to humanitarian disasters," leading to calls for a "more anticipatory approach" in disaster preparedness and response.

This plethora of challenges affects humanitarian logistics planning and delivery efficiency in disaster response and recovery and compromises the principal objective of saving lives where efficiency and timely recovery is crucial.Therefore, there is a social significance and practical need to explore the ways efficiency and effectiveness in humanitarian aid logistics and supply chain can be improved in disaster response, based on the experiences and perceptions of Finnish civil society humanitarian organizations.

1.1   Humanitarian aid by Finland

The study is undertaken in Finland and the target organizations are civil society organizations and agencies involved in the implementation of humanitarian aid relief programs and projects in Finland and in developing countries in disaster-prone regions world. According to the Ministry for Foreign Affairs of Finland, Finland's humanitarian aid or assistance amounted to over EUR 97.8 million in 2015, EUR 92 million in 2016, and an additional EUR 14 million for humanitarian crisis areas across the world in late December 2016.Amongst the biggest recipients were refugee crisis situations in Syria, South Sudan, Somalia, Yemen,

Kenya, Chad, Iraq, Northern Nigeria, and Afghanistan. Humanitarian aid is financed from Finland's development cooperation appropriations and Finland is committed to channeling annually about 10 percent of its development aid appropriations for humanitarian aid directed to official development assistance (ODA) recipient countries.
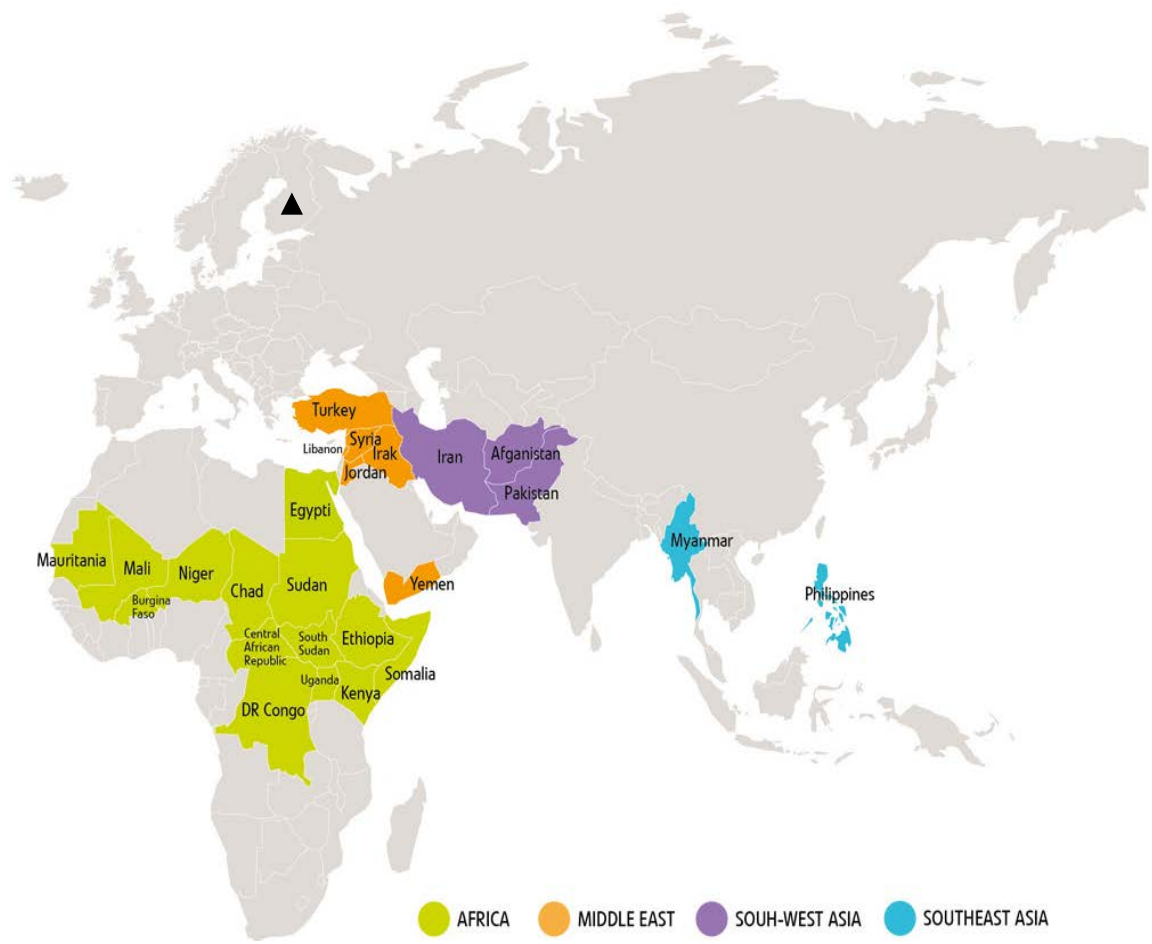
Figure 1: Map showing countries in Africa, the Middle East, South West Asia and South East Asia in crisis situations where Finland (dark triangle) provided humanitarian aid in 2014 (Ministry for Foreign Affairs of Finland 2017)

1.2 Research Question

This thesis aims to find ways humanitarian organisations in Finland can improve their response in disaster relief operations which will increase the chances of saving life, add economic value and improve quality in their operations.

The research question for this study can be worded as "How can we improve effectiveness and efficiency in humanitarian aid logistics operations in emergency disaster response situations"?

The specific investigative question (IQ) for the study includes:

IQ 1.Which professional skills and training are important for staff working in humanitarian aid logistic operations?

IQ 2. How can finance and infrastructural resources be mobilized to address humanitarian needs?

IQ 3.What information management and coordination tools are needed by humanitarian actors for humanitarian aid operations?

IQ 4. What key performance indicators (KPIs) are used to measure response in humanitarian aid logistics operations?

IQ 5.How does bearucracy affect humanitarian aid logistics operations?

Table 1 below presents the theoretical framework, research methods and results chapters for each investigative question.

Table 1: Overlay matrix

Investigative question	Theoretical Framework*	Research Methods	Results (chapter)
IQ 1. Which professional skills and training are important for staff working in humanitarian aid logistic operations?	Three dimension network of humanitarian logistics by Jahre et al.(2009) Skills needed for humanitarian logistics by Kovacs et al.(2012)	Online questionnaire And Interviews	4.2
IQ 2. How can finance and infrastructural resources be mobilized to address humanitarian needs?	Impact of financial flow on disaster response by Tatham and Christopher, 2014.	Online questionnaire And Interviews	4.3
IQ 3. What information management and coordination tools are needed by humanitarian actors for humanitarian aid operations?	Disaster management information systems by Haavisto et al. (2016)	Online questiontionnaire And Interviews	4.4

IQ4 What key performance indicators (KPIs) are used to measure response in humanitarian aid logistics operations?	Key performance indicators in humanitarian logistics by Davidson, 2006.	Online questionnaire And Interviews	4.5
IQ 5 How does bearucracy affect humanitarian aid logistics operations?	The role and impact of host government in humanitarian logistics by Dube et al 2016.	Online questionnaire And Interviews	4.6

1.3   Demarcation

The research study is focused on exploring and understading the ways in which efficiency and effectiveness can be improved in humanitarian logistics operations in disaster-prone regions by humanitarian organisations.The research will explore the challenges faced by Finnish Civil Society Organisations working on humanitarian aid operations abroad and in Finland and what they think can be done to improve the effectiveness and efficiency of humanitarian activities in these countries and regions of their operation.

1.4   International Aspect

Globalization of company's operations whether be it for profit or not for profit companies, the need to seek for better ways to improve their response to changes in their operations is paramount. Most of the civil society organisation and humanitarian organisation in Finland carryout disaster response operations both at home as well as abroad. As these companies have international dimension in their operations and the result of this study will focus on improving response in operations, it would certainly help the various stakeholders in decision making process when encounter with the problem of disaster response abroad.

1.5   Benefits

There is the urgent need for improvement in response to natural disaster and re-occuring nature of some man-made disasters in volatile countries by humanitarian organisations in order to safe life. This study will benefit various stakeholders such as the government, civil society organisations and humanitarian organisations in making timely decision in response to humanitarian aid. This study can also serve as a basic road map for improving response in humanitarian aid operations in Finland as well as a base for further research into the topic. For me, this work satisfied my passion of studying something different from

the traditional business operations and gives me the opportunity to learn new concepts as I intend to pursue a master degree specializing in humanitarian logistics focusing on immediate response to disaster relief.

1.6 Key Concepts

This section provides definitions for the terminologies that will be frequently used in the research paper and that are used in the field of humanitarian logistics. Some of the selected terms includs;

Humanitarian aid:

Humanitarian aid is that which "seeks to save lives and alleviate suffering of a crisis affected population, provided in accordance with the basic humanitarian principles of humanity, impartiality, neutrality, and independent as stated in General Assembly Resolution 46/182, with full respect for the sovereignty of States. Assistance may be divided into three categories - direct assistance, indirect assistance and infrastructure support - which have diminishing degrees of contact with the affected population" (Reliefweb 2008).

Humanitarian disaster:

Intenational relief organisations such as the International Federation of the Red Cross, the United Nations humanitarian agencies, World Vision International unanimously agree that a disaster is"a sudden, calamitous event,or series of events that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources" (Natarajarathinam et al. 2009).

Humanitarian logistics:

As stated by Thomas and Mizushima (2005, 60), Humanitarian logistics is ". . . the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials as well as related information, from the point of origin to the point of consumption for the purpose of meeting the end beneficiary's requirements."

Humanitarian Principles:

These are principles that must be promoted and respected by humanitarian actors, as per UN General Assembly Resolution 46/182 (19 December1991), including; **humanity** (uphold the principle that all girls, boys, women and men of every age shall be treated humanely in all circumstances by saving and protecting lives and health, alleviating suffering, while ensuring respect for individuals), **neutrality** (demonstrate a commitment not to take sides in hostilities and to refrain from engaging in controversies of a political, racial, religious or

ideological nature), **impartiality** (be carried out on the basis of need alone, giving priority to the most urgent cases of distress and making no distinctions on the basis of nationality, race, gender, religious belief, class or political opinions), and **independence** (be autonomous from the political, economic, military or other objectives that any actor may hold with regard to areas where humanitarian action is being implemented) (OCHA 2012).

Emmergency relief:

This is the"immediate survival assistance to the victims of crisis and violent conflict. Most relief operations are initiated on short notice and have a short implementation period (project objectives are generally completed within a year). The main purpose of emergency relief is to save lives" (Reliefweb 2008).

Cascading (disasters) effect:

Cascading effect is referred to the snowball effect is a situation where one thing leads to another due to their complexity such as an earthquake leading to a tsunami causing flloods or nuclear disaster that further leads to distortions in several supply chains, putting a heavy pressure on the humanitarian response (Haavisto et al. 2013). According to the director of the UNU-EHB (German Committee for Disaster Reduction, 2011; cited in Haavisto et al. 2013):"The cascading effects of complex emergencies resulting from the combination of

creeping changes and sudden onset disasters may cause the international humanitarian system to reach a tipping point in its capacity to provide assistance."

Disaster management:

The International Federation of Red Cross describes "disaster management as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters" (IFRC 2017).

Disaster Preparedness:

"Disaster preparedness refers to measures taken to prepare for and reduce the effects of disasters,that is, to predict and, where possible, prevent disasters, mitigate their impact on vulnerable populations, and respond to and effectively cope with their consequences" (IFRC 2017).

Disaster response:

Disaster response are actions taken to "rescue from immediate danger and stabilization of the physical and emotional condition of survivors, and go hand in hand with the recovery of the dead and the restoration of essential services such as water and power" (IFRC 2017).

Disaster relief:

The focus of disaster relief is to ". . . design the transportation of first aid material, food, equipment, and rescue personnel from supply points to a large number of destination nodes geographically scattered over the disaster region and the evacuation and transfer of people affected by the disaster to the health care centers safely and very rapidly" (Barbarosoglu et al. 2002, 118).

Disaster recovery:

The restoring or improving of livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster-affected community or society, aligning with the principles of sustainable development and "build back better", to avoid or reduce future disaster risk. (UNISDR 2007)

Humanitarian Operations:

These are"operations conducted to relieve human suffering, especially in circumstances where responsible authorities in the area are unable or unwilling to provide adequate service support to civilian populations" (Reliefweb 2008).

2   Supporting the improvement of response in humanitarian aid disaster operations

The focus of this chapter is on the main theories and mechanism which seeks to support improvement as well as analyze response effort during disaster.

2.1   Humanitarian logistics structures/networks

Humanitarian operations come in three phases: emergency phase (the point or period in time when a disaster or conflict occurs), relief phase (period of the immediate aftermath of a disaster), and recovery phase (period of aid recovery to pre-disaster condition). To improve efficiency and effectiveness of operations in humanitarian aid logistics during these phases will require more innovative and responsive coordination and integration within and between supply chains that operate in highly dynamic and distinctive environments of humanitarian aid logistics. The framework for the study of humanitarian logistics involves the interplay between the permanent and temporary networks, vertical and horizontal coordination structures, and centralised and de-centralised structures (Figure 2), as suggested by Jahre et al. (2009).
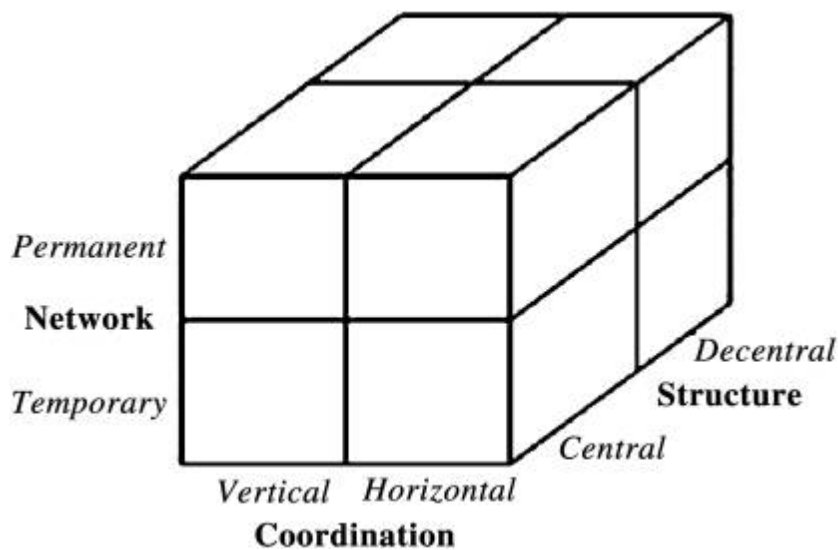
Figure 2: Three dimensions as a basis for theoretical development (Jahre et al. 2009).

2.1.1   Permanent and temporary networks

Permanent and temporary networks are links between the permanent structures/networks of humanitarian actors and temporal networks created once a crisis occurs. The link between the permanent network from which resources are mobilized and the temporal network of each operational organization is developed as part of the planning and preparedness

strategy (Jahre et al. 2009) because it is considered as one of the most important elements for successful response in emergency situations (van Wassenhove 2006).A proposed framework on the representation of permanent and temporal networks in the humanitarian setting in relation to the other humanitarian logistics networks is presented in Table 2 as outlined by Jahre et al. (2009).

Table 2: Theoretical perspectives in relation to temporary and permanent humanitarian logistics network (Jahre et al. 2009)

Theoretical perspective	Humanitarian permanent network(preparedness)	Humanitarian temporary network (response)
Project management	Parent organization: contingency planning for crisis	Deployment: setting up an operation, drawing resources from multiple permanentorganizations
Networks as supply chains	Supply network: developingrelations to relevant actors in thesupply network	Individual supply chains:mobilizing actors within thesupply network, both locallywithin the area of operations and internationally
Resource networks	Combination of inter- and intraorganizationalresources:designing structures, building knowledge and planning forrecombination of resources	Recombining resources

2.1.2 Vertical and horizontal coordination

Vertical and horizontal coordination of a supply chain encompasses the challenges of coordinating vertically when supply chains extends into unknown areas, and horizontally between actors within an area of operations, due to the fact that in major crises many organizations of different kinds will be present (Figure 1). This makes coordination among humanitarian organizations (e.g. aid agencies, NGOs, governments, grass root organisations, national and local chapters), suppliers, and public and private partnership of various actors of the supply chain in humanitarian aid logistics very important (Kovács & Spens, 2008; Haavisto et al. 2013). Coordination among permanent structures can be planned for, but coordination in the temporay network of organisations in a disaster area is more challenging

and depends on the type of the disasters and the needs involved as different disasters (epedemics, earthquakes, tsunamis, nuclear disasters etc.) trigger also different needs (Haavisto et al. 2013). There is also flexible coordination with suppliers, which involves the use of postponement and speculation strategies in the prepositioning of stock (Jahre et al. 2009; Haavisto et al. 2013) and coordination with logisticians or logistics service providers (Jensen 2012).

2.1.3 Centralized and de-centralized structures

Centralised and de-centralised structures questions about how to decide what resources and activities to be kept at a central geographical location and what activities to perform or resources to keep at de-centralized local and regional points in order to enhance the ability to respond to disasters.This falls within the increasing need for more efficient coordination and integration within a supply chain and between different supply chains and the distribution of activities between centralized (regional headquarters) and de-centralized structures (pre-positioned stocks in the vicinity of potential local and regional areas of crisis). Further detailed explanation of the above three dimensional theoretical framework can be found in Jahre et al. (2009).

2.2 Supply chain and logistics management

Supply chain management and logistics management two different but interrelated concepts. The Council of Supply Chain Management Professionals (CSCMP) has provided deatailed definitions of these two concepts, highlighting their boounodary of activities and relationship.

2.2.1 Supply chain management

The Council of Supply Chain Management Professionals(CSCMP) defined Supply Chain Management (SCM) as thus:"Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities.Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply chain management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It includes all of the logistics management activities noted above, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, and finance and information technology."

2.2.2 Logistics management

According to the Council of Supply Chain Management Professionals (CSCMP 2017), "Logistics management is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements. Logistics management activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment, logistics network design, inventory management, supply/demand planning, and management of third party logistics services providers. To varying degrees, the logistics function also includes sourcing and procurement, production planning and scheduling, packaging and assembly, and customer service. It is involved in all levels of planning and execution-strategic, operational, and tactical. Logistics management is an integrating function which coordinates and optimizes all logistics activities, as well as integrates logistics activities with other functions, including marketing, sales, manufacturing, finance, and information technology."

The key components of distribution and logistics include storage, warehousing and material handling, information and control, packaging and utilisation, transport and inventory activities (Figure 3), as suggested by Rushton, Croucker and Baker (2006).
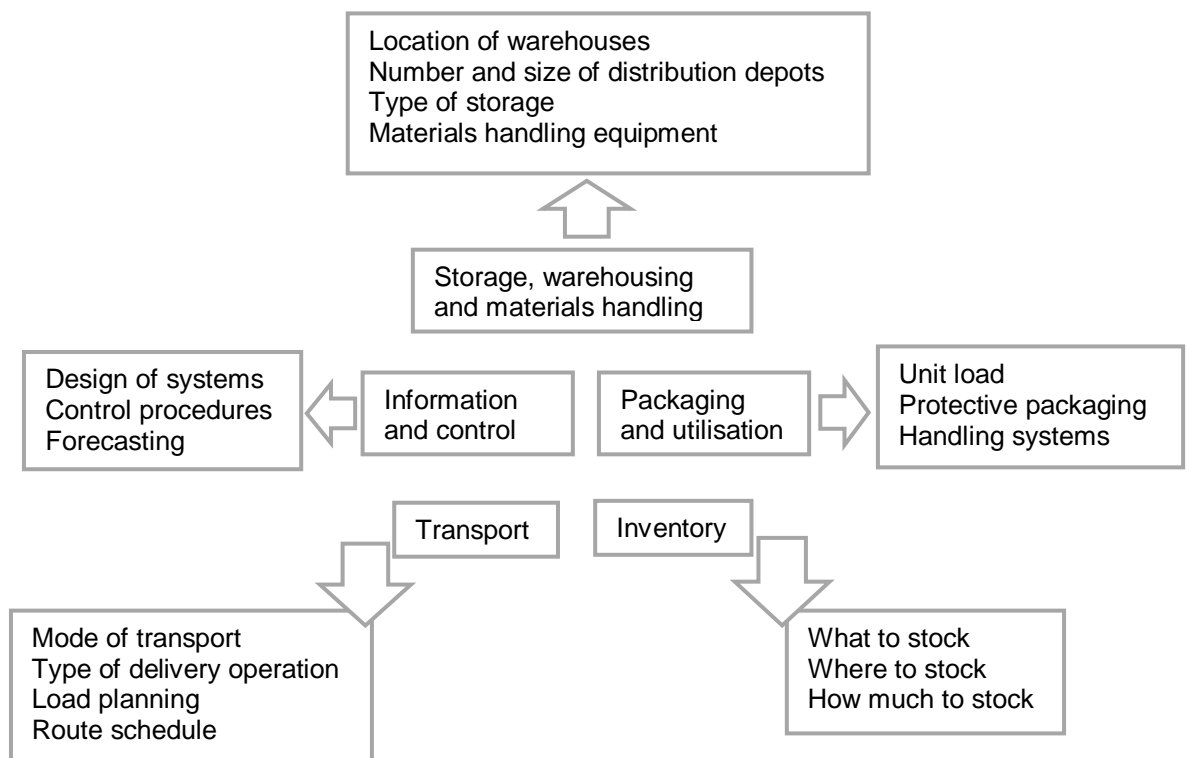

Figure 3: The key components of distribution and logistics. Reproduced from Rushton, Croucker and Baker (2006, 6).

2.3   Humanitarian supply chain and logistics

2.3.1   Humanitarian system and collaborations

As stated by the United Nations Children Emergency Fund (UNICEF), the international humanitarian system comprises of a wide range of humanitarian actors, that is, agencies and organisations responding to emergencies, including; United Nations agencies, NGOs, The Red Cross Movement and Donors (Table 3).

Table 3: Main humanitarian actors responding to disaster emergencies (UNICEF 2014)

United Nations agencies	NGOs	Donors	The Red Cross Movement
United Nations High Commission for Refugees (UNHCR)	Local civil society organisations	Bilaterally (government to government)	International Committee of the Red Cross (ICRC)
World Food Programme (WEP)			
United Nations Children Emergency Fund (UNICEF)			International Federation of Red Cross and Red Crescent Societies (IFRC)
World Health Organisation (WHO)	International civil society organisations	Through UN agencies, the Red Cross and NGOs in support of a humanitarian response	
Food and Agricultural Organisation (FAO)			National Red Cross and Red Crescent Societies
United Nations Development Programme (UNDP) Fund			

There are six United Nations humanitarian agencies, namely; UNICEF, WHO, WFP, UNHCR, FAO and UNDP (Table 3) and each has individual mandates, governance mechanism and coordination activities and each play some direct role in response to nutrition emergencies, except UNDP (UNICEF 2014). Donors, particularly foreign governments provide food aid or cash resources through governments and/or through UN agencies, the Red

Cross and NGOs in support of humanitarian response, depending on the country government aid policies and the nature of the disaster. The Red Cross Movement comprises collectively of the International Committee of the Red Cross (ICRC), the International Federation of Red Cross and Red Crescent Societies (IFRC) and National Red Cross and Red Crescent Societies. These independent bodies forming The Red Cross Movement share a commitment to the seven Red Cross and Red Crescent fundamental principles of humanity, impartiality, neutrality, independence, voluntary service, unity and universality. NGOs include local and international civil society organizations involved in emergencies and range in size, capacity, technical focus, religious affiliation and quality of response. Local NGOs are important for humanitarian response due to their connectedness with the local population and knowledge of the context (UNICEF 2014).

2.3.2 International humanitarian coordination mechanisms

To ensure the delivery of coherent humanitarian assistance according to the humanitarian principles, the United Nations has established a number of interdependent coordination mechanisms (Figure 4) designed to guide relations among humanitarian actors and between humanitarian actors, Governments and the people affected by a disaster. This is important because effective disaster response and disaster response preparedness requires careful coordination at global, regional, national and local levels. The international coordination mechanism includes; Emergency Relief Coordinator, Inter-Agency Standing Committee, Resident and Humanitarian Coordinators, Humanitarian Country Team, Cluster Approach, and Office for the Coordination of Humanitarian Affairs (Figure 4).

Global Level Mechanisms: The Inter-Agency Standing Committee
The Emergency Relief Coordinator (ERC) chairs the Inter-Agency Standing Committee (IASC) of governmental, inter-governmental and non-governmental organisations and coordinates international humanitarian assistance during emergency response carried out by key UN and non-UN humanitarian partners (Figure4).The ERC has the specific responsibility for "processing Members States' requests and coordinating humanitarian assistance; ensuring information management and sharing to support early warning and response; facilitating access to emergency areas; organizing needs assessments, preparing joint appeals, and mobilizing resources to support humanitarian response; and supporting a smooth transition from relief to recovery operations" (UNOCHA 2013).

Country Level Mechanisms: Humanitarian country team
The Humanitarian Country Team (HCT) is an in-country decision-making forum focused on providing common strategic and policy guidance on issues related to humanitarian action and to the overall response effort during a disaster. The humanitarian coordinator (HC)

supports coordination of humanitarian operations among all UN and non-UN international actors at the start of a crisis whereas the resident or regional coordinator (RC) supports coordination of response efforts and development operations among only UN actors in a particular country (UNOCHA 2013). The HCT and HC relate with key assisting Government Ministries and Clusters of National Disaster Management Organisations (Figure 4 and 5).
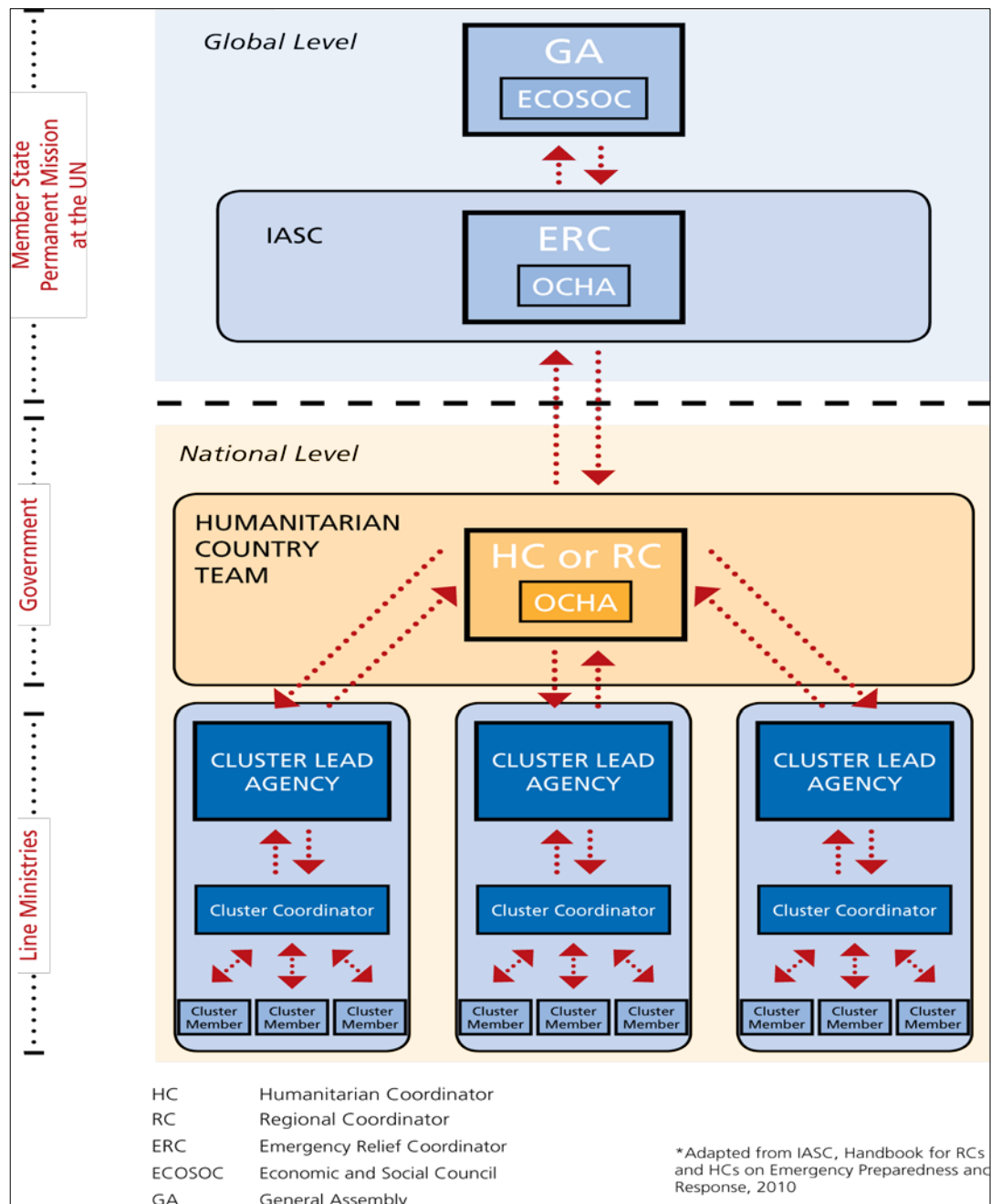
Figure 4: United Nations humanitarian coordination architecture (UNOCHA 2013).
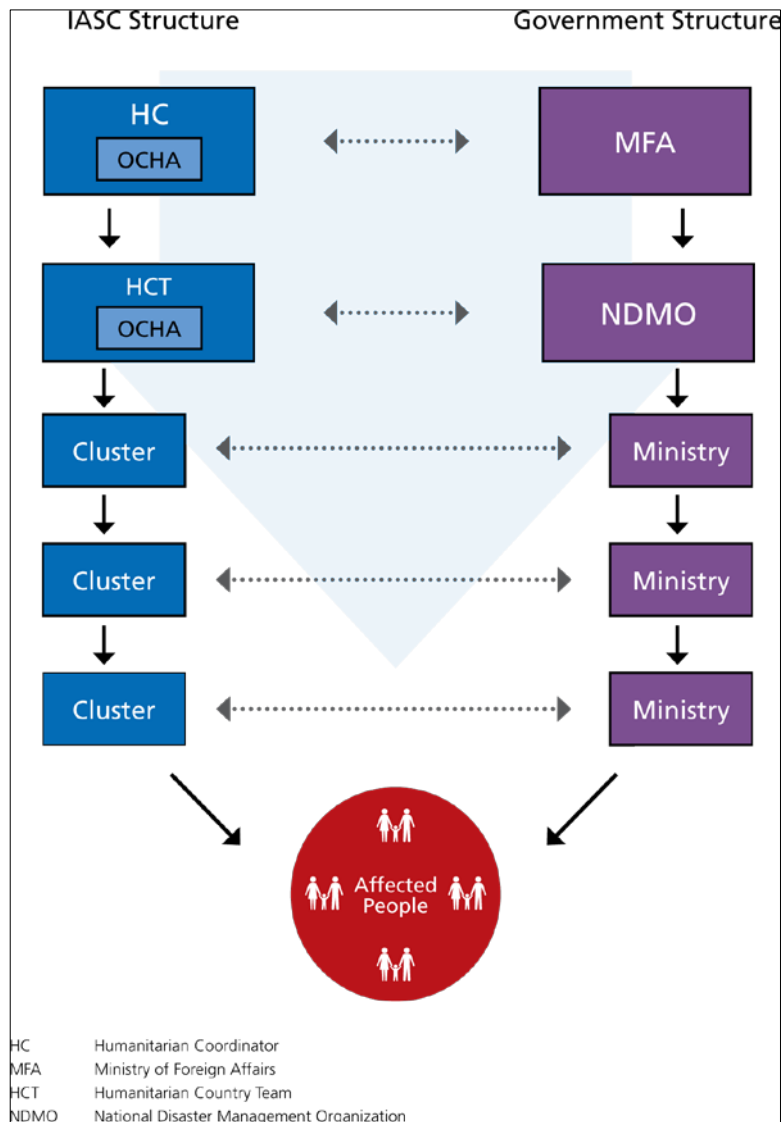
Figure 5: United Nations humanitarian country team coordination and interface with Government (UNOCHA 2013).

"Bridging"Mechanisms: **Cluster concept**

Clusters are UN and non-UN operational agencies of humanitarian action managed and activated at global, country and local levels to support national governments in managing international assistance in varying phases before, during and after a disaster (Figure 4 and 5). The "Cluster Approach" to humanitarian disaster management is used to improve coordination and integration and to strengthen humanitarian response during emergencies. The activation of all clusters in every emergency situation not always required because certain emergency situations may only require the technical tools and services provided by some clusters than others at country levels. The cluster conceptual approach to disaster management ensures that a broad range of disaster preparation and response activities powered by the various UN humanitarian agencies (e.g. water and sanitation, food, education, health etc.) are grouped together into clusters and the logistic cluster is led by one agency such

as the World Food Programme (IASC, 2012). Country-level clusters implement the strategic and policy guidance provided by the humanitarian country team by coordinating operational response efforts in their respective areas of expertise. Detailed description of the interrelationships and specific responsibilities of the global levelmechanisms, country level mechanisms, and "bridging" (clusters) mechanisms of the humanitarian coordination mechanisms developed by the Inter-Agency Standing Committee (IASC) of the UN can be found on http://www.unocha.org.
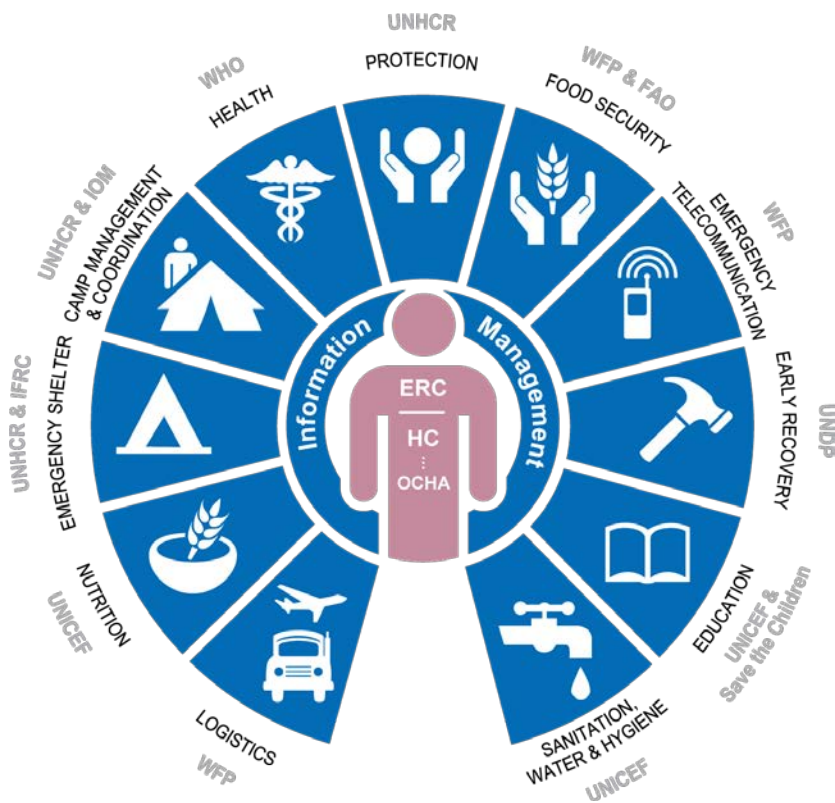
Figure 6: United Nations humanitarian clusters (UNOCHA 2013).

2.3.3 Humanitarian supply chain management network

The International Federation of the Red Cross (IFRC) defines humanitarian supply chain management (SCM) as "acquiring and delivering requested supplies and services at the places and times they are needed, whilst ensuring best value for money; in the immediate aftermath of a disaster or reconstruction situation, including items that are vital for survival, such as food, water, temporary shelter and medicine." According to the Network on Humanitarian Action (NOHA 2016), humanitarian supply chain management consists of technical perspective (logistics, information gathering, warehousing, pre-positioning, transportation, distribution), and strategic perspective (decision making, co-ordination, inter-organisational

co-operation, public-private partnerships, contribution to long-term recovery through knowledge transfer).

The humanitarian aid supply network is highly complex involving several humanitarian organizations such as aid agencies, NGOs, logistics service providers, military, governments, suppliers and donors (Figure 7) with different objectives, but who must work in coordination with a common objective of saving lives and goal of disaster relief (Kovács and Spens 2008).
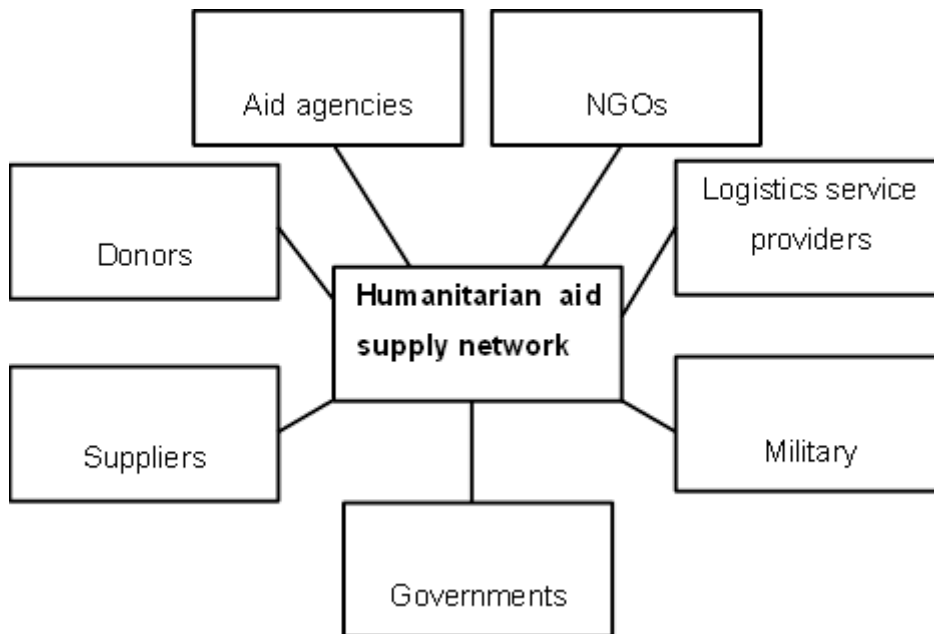
Figure 7: Humanitarian aid supply network (Kovács and Spens, 2007; 2008: 223).

2.3.4 Humanitarian versus business versus military supply chain

The differences between the characteristics of the humanitarian supply chain, the business supply chain and military supply chain are presented in Table 4.The criteria to highlight their differences is based on the objective of operation, knowledge of supply and suppliers, predictability of demand, actors involved, sources of financing, collaboration along supply chain, availability of infrastructure, and levels of decision-making (Table 4).

Table 4: Humanitarian versus business versus military supply chain (Humlog lecture 2015)

	Business supply chain	Military supply chain	Humanitarian supply chain
Objective	Profit	Protection, warfare, peace-keeping (non-profit)	Saving lives (non-profit)
Supply	Predetermined set of suppliers and manufacturing sites	Predetermined; Abundance of physical and human resources	Limited knowledge; involvement and contribution of suppliers is unpredictable
Demand	Stable (or at least predictable)	Both predictable and unpredictable (strategic)	Often unpredictable, limited knowledge (location, number of people)
Actors	Business networks (similar objectives)	Political actors	Multiple organizations with different objectives
Financing	Private	Public (financing for preparedness)	Public and private donors- unpredictable, inflexible, late, never enough! (financing for response)
Collaboration	Collaboration along the supply chain (but no cartels!)	Collaboration, but little oursourcing of activities	Co-opetition (specialized organizations), clusters for interoperability
Infrastructure	Stable	Reduced communications and transport infrastructure	Reduced communications and transport infrastructure
Decision-making	Centralized and de-centralized	Clear hierarchy, centralized	Decentralized but coordinated

2.3.5 Humanitarian logistics management

Logistics is the biggest cost factor in humanitarian aid as it accounts for 80% of costs of humanitarian aid (van Wassenhove, 2006).The IFRC affirms that the basic task of humanitarian logistics comprises "acquiring and delivering requested supplies and services, at the places and times they are needed, whilst ensuring best value for money".Humanitarian logistics management strategies entail dealing with the effects of postponement and speculation of both manufacturing and logistics activities as outlined in Table 5 (Jahre et al. 2009).Manufacturing postponement means that"form and identity of the product is held at a disaggregated level for as long as possible such as by changing the sequence of activities."Logistics postponement means that"forward movement through the supply chain is delayed in time with the aim of finding the best locations for decoupling points" (Jahre et al. 2009).Full speculation strategy means that "both manufacturing and logistics is based on

forecasts" whereas full postponement strategy means that "both manufacturing and logistics is made to order."Manufacturing postponement strategy means that "products are kept at a disaggregated level at de-centralized points"whereas logistics postponement strategy is "associated with direct distribution of finalized productsfrom manufacturer or a centralized warehouse to end users."Jahre et al. (2009) argues that the principle of postponement and speculation is important for the purpose of understanding links between permanent and temporal networks, and understanding the implications of centralised and de-centralised logistics structures on the efficiency and effectiveness in the response and recovery phases of a disaster.

Table 5: Alternative postponement/speculation strategies in humanitarian logistics (Jahre et al. 2009)

	Logistics speculation	**Logistics postponement**
Manufacturing speculation	Full speculation strategy: preparedness through prepositioning stocks of finished goods at de-centralized points	Logistics postponement strategy: preparedness through centralized stocks of finished goods and investments in transport and goods handling capacity
Manufacturing postponement	Manufacturing postponement strategy: preparedness through pre-positioning semi-finished goods at de-centralized points.Assembling, bundling, packing and labelling goods locally	Full postponement strategy: preparedness through investing in relations with suppliers of semi-finished goods and investments in logistics (transport and goods handling) capacity

2.4   Humanitarian disaster relief management

Disaster management comprises of four phases of pre- and post-disaster activities, namely; mitigation, preparedness, response and rehabilitation or recovery (Van Wassenhove 2006, Cozzolino 2012), and this stream is presented in Figure 8. Before a disaster occurs, there are mitigation and preparation activities that aim at reducing the risk and impact of disasters and increasing the effectiveness of the response and rehabilitation phases after disasters (Van Wassenhove 2006, 481). However, research suggest that most relief organisations often neglect pre-disaster activities in the preparedness phase and prefer spending sourced

money directly to helping victims in post-disaster activities in the response phase (Kovács and Spens 2007).
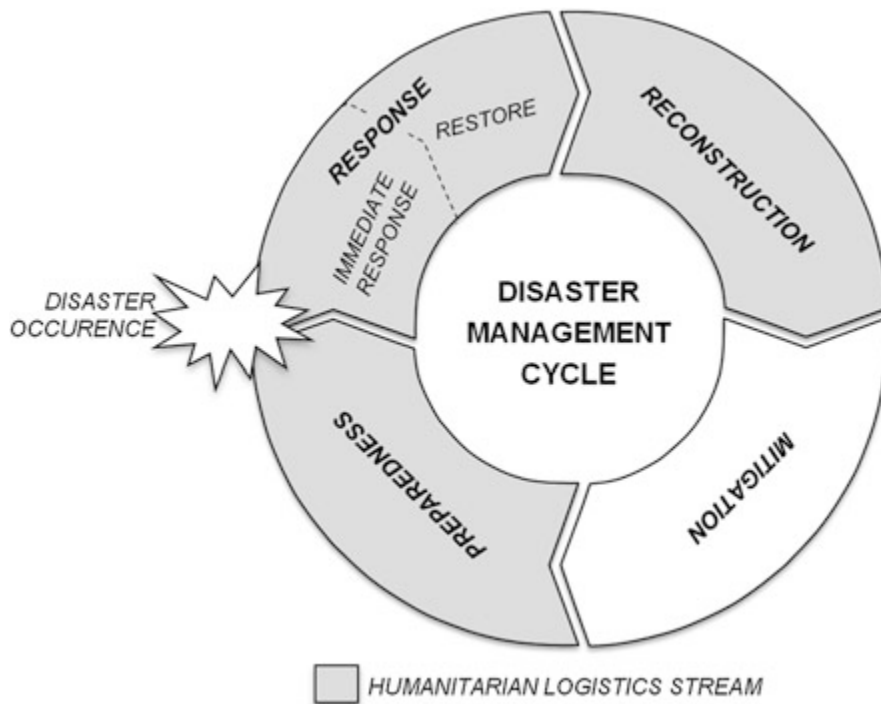
Figure 8: The humanitarian logistics stream (Cozzolino 2012, 9)

2.4.1   Humanitarian disaster classification

"Humanitarian disasters include both natural and man-made disasters and their impact is increasingly severe, linked to a number of factors, such as the changing nature of conflict, climate change, increasing competition for access to energy and natural resources, extreme poverty, poor governance and situations of fragility." (The European Consensus 2008).The International Federations of Red Cross (IFRC) also affirm this by providing further details and definitions of these disaster types on their web site (ifrc.org).

Natural disasters

Natural disasters of sudden- or slow-onset are presented in Table 6. Sudden onset (rapid onset) natural disasters or "complex emergencies"account for only about 3% of disaster relief activities (van Wassenhove 2006, 476). The number of people killed during natural disasters has decreased significantly whereas the the number of disasters and the number of people affected have increased significantly during the last decade according to the United Nations.

Man-made disasters

Man-made disasters (Table 6) also comprises complex emergencies involving high military presence, refugees, questions of security and neutrality, restricted access, and limited possible assistance from the impact country (van Wassenhove 2006, 476). Some man-made disasters such as nuclear, earthquake, and tsunami are teamed "cascading disasters" because of the potential of having a "cascading effect" or "snowball effect", where one thing leads to another due to their complexity (Haavisto et al. 2013, 141).

Table 6: Classification of disasters (Van wassenhove 2006, 476)

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

2.4.2 Disaster preparedness

Preparedness is crucial to fast disaster response because it is a central element in reducing the impact of disasters worldwide (Kunz et al. 2014). Preparedness saves lives and money during disasters and crises, and adequate preparedness by national actors can also significantly improve first response at the local and national level, and reduce the need for international mobilisation (Logistics Cluster 2017). Preparedness is grouped into physical and intangible preparedness activities as follows:

Physical preparedness: Prepositioning relief supplies

One way for relief organisations to get prepared for a disaster is by physically pre-positioning relief supplies such as food, medicines or shelter in warehouses (Van Wassenhove 2006; Jahre et al. 2009; Kunz et al. 2014). Thus, physical preparedness activities "embrace all proactive investments in tangible resources in disaster-prone countries, such as, stocking of various kinds of inventories or building infrastructure in the form of pre-positioning relief supplies in warehouses in disaster prone countries"(Kunz et al. 2014, 5).

Pre-positioning of food supplies, for example, could reduce the the nnumber of days required to get food supplies to victims in disaster areas thereby increasing effectiveness in

humanitarian relief response. Although an effective physical preparedness strategy,pre-positioning is very expensive because supplies that are not used during years with no disaster would need to be renewed regularly, especially food or medicines with expiration dates, and running a network of local warehouse in every disaster prone country would be expensive for any relief organisation (Kunz et al. 2014).Three decisions are considered in inventory pre-positioning activities, namely; facility location decisons (identifying the most suitable place for inventory in the relief network), inventory manangement decisions (concerned with inventory policy decisions), and transportation decisions (transportation policy on transport of inventory to where it is needed) (Richardson et al. 2010).

Intangible preparedness: Developing local "disaster management capabilities"

A second way for relief organisations to get prepared for a disaster is by investing in developing "local disaster management capabilities" to build good local knowledge and existing network in each disaster-prone country (Kunz et al. 2014). This strategy of working with stakeholders to strengthen local capacities in high risk disaster countries is aimed to strengthen the logistic preparedness of national actors (Logistics Cluster 2017). Intangible preparedness activities include five key elements of preparedness, such as, human resources, knowledge management, process management, resources, and community (Van Wassenhove 2006); investing in the above disaster management capabilities will enable relief organizations to be well-prepared and to possess the necessary abilities to respond swiftly to a disaster (Kunz et al. 2014, 6).

For example, investing in human resources entails hiring and training staff to respond to disasters; investing in knowledge management entails learning from previous disaster response experience, developing best practices, and early warning systems;investing in process managemnt entails pre-negotiating custom agreements countries prone to disasters, or harmonising import procedures with local customs clearance procedures; investing in resources entails preparing financial resources for quick disaster response; and investing in communities entails educating vulnerable communities to recognise specific pre-disaster events and to respond appropriately, and cooperating with local governments, military, humanitarian organisations, and business in order to establish frameworks agreements or permanent networks of actors, amongst others (Van Wassenhove 2006;Kovács and Spens 2007;Jahre et al. 2009; Kunz et al. 2014).

Kunz et al. (2014, 7) argues that investing in capabilities to develop specific importation procedures for each disaster-prone country, negotiating agreements with local governments, identify possible distribution centers and local suppliers and staff that could distribute

supplies, for example, could enable relief organisations to respond quickly after a disaster, and evading the huge costs for pre-positioning supplies.

2.4.3 Disaster response

This section presents a summary overview of some of the most important international tools and services for disaster response. According to the publication of the United Nation Office for the Coordination of Humanitarian Affairs, disasters response tools and services comprises of the mobilisations of technical team, technical services, and financial resources, and information management and assessments. The technical team is composed of bilateral, inter-governmental and International Red Cross and Red Crescent (RCRC) Movement, in addition to sector-specific technical teams deployed by Governments, clusters, and other individual agencies designed to complement emergency response efforts. The technical services include relief assets and stockpiles (pre-positioned supplies), technical networks, and standby and surge rosters. "Mobilising "fast money" is a critical tool in kick-starting response at the onset of a disaster" and together with strategic and fundraising tools help build the financial resources needed for disaster response.Another crucial part of any humanitarian response is information management.

Humanitarian information management involves the collection, analysis and dissemination of information about a disaster situation to support decision-making and coordination in an emergency. It is worth mentioning that initial response to a disaster emergency usually comes from disaster-unaffected communities and their governments. The deployment of international technical teams and services in an emergency to support national government and international organisations in their response comes only when the needs of disaster response in large and medium-scale disasters overwhelm national capacities and an affected Government requests and/or accepts international assistance (UNOCHA 2013).

2.5 Skills needed by humanitarian logisticians

Humanitarian logistics skills have been invigorated for reasons of competence development and curriculum development (Thomas and Mizushima 2005; Walker and Russ 2010). This reflects a growing interest of professionalization of humanitarian logisticians and highlights new gaps in existing logistics curricula for those aspiring for the profession.Regular shortage of humanitarian logisticians, high workforce rotation (up to 80% each year), and the challenges retaining personnel (Overstreet et al.2011) also contributed to the importance of identifying humanitarian logistics skills (Kovacs et al.2012,246).

From table (7) below, Kovacs et al. 2012 categorize the skill profile of humanitarian logisti-
cians into five categories namely; general management skills, functional logistics skills, in-
terpersonal skills, problem solving & personality traits as well as skills for the humanitarian
context.The study takes into account job adverts of humanitarian organizations focusing in
the 2010 Haiti earthquake and making content analysis of what skills were highly needed
by humanitarian organizations management.The results shows that, most humanitarian
organizations requested and needed knowledge of functional logistics skills with the top
five ranked as "inventory and asset management, purchasing and procurement, transpor-
tation management, and fleet management respectively (Kovacs et al.2012,249). This re-
sult is also similar to the findings by Kovacs and Tatham (2010) that survey business, hu-
manitarian and military logisticians and found that humanitarian logistics place more em-
phasis on functional logistics skills although some humanitarian context skills could be
added.

Table 7: The skills profile of the humanitarian logisticians. Adapted from Kovacs et al.
(2012, 249).

General Management Skills	Functional Logistics Skills	Interpersonal Skills	Problem Solving and Personality Traits
Finance and accounting incl. budgeting,Information technology manage-ment,Change manage-ment,Marketing,Project management,Strategic management,Customer relationship manage-ment,Supplier relationship management,Risk man-agement,Human resource management incl. recruit-ment	Legal,Customs, import and export,Transportation man-agement,Inventory and as-set management ,Ware-housing,Purchasing and pro-curement,Forecasting,Re-verse logistics,Port / airport management,Logistics infor-mation systems	Listening,Oral commu-nication,Written com-munication,Meeting facilitation,Negotia-tion,People (line) man-agement,Leadership	Problem identifica-tion,Information gather-ing,Problem analy-sis,Information shar-ing,Problem solv-ing,Stress manage-ment

			Skills for the Humanitarian Context
			Emergency preparedness,Design and implementation of (logistics) policies,Fleet management,Mechanics and maintenance,Security

2.6   Impacts of financial flows on disaster response

Finding systems and financial flows play an important role in humanitarian operations either directly or indirectly by affecting the scope, speed, effectiveness and efficiency of the disaster response (Toyasaki and Wakolbinger, 2013).

Funds available for humanitarian relief operations are growing but they are not large enough to cover humanitarian need (Development Initiatives, 2009b). This means that, the rising number of disaster has made funding fall short of response needs. As such, aid agencies have to compete for the few funds that are available in order to meet the need for disaster response. Therefore, the amount of fund gain by an aid agency will determine its coverage taking into account whether it is earmarked or non-earmarked donations.

Adequate funding for the preparation of disaster strongly determines how quickly and efficiently an aid agency can respond to a disaster (Jahre and Heigh, 2008). This funding are usually from private and government donors whose availability depends on two separate factors. In the case of private donation, the amount is determine by level of news coverage (Bennett and Kottasz, 2000; Tomasini and Van Wassenhove, 2009). For instance, the Tsunami and Indian Ocean earthquake of 2004 had huge donation from private communities while other emergencies were neglected due to less media coverage (Tatham and Christopher 2014, 45). On the part of the government, funds usually pledge had always provided in full amount or at the right time. For instance, only a third of promise funds by governments were receive by aid agencies in the crisis in Sudan (Darfur) and Hurricane Mitch (Oloruntoba, 2005).

The speed and timing to response to disaster also depends on how quickly the aid agency is able to get fund to set up operations. Some aid agencies have resources for pre-performance before expecting external donors (Development Initiatives, 2009a). For instance, IFRC have disaster relief emergency fund to respond to disaster before receiving outside

fund. The immediate impact is that, it increases humanitarian response and safe life in disaster/crisis situations.

2.7 Disaster management information systems

"The availability of information and communication technologies has help humanitarians, affected communities and volunteers to create, collect, share and use more information in carrying out their operations." This can be seen through Facebook, Twitter, and Blogs or directly through official websites of United Nation agencies and Non-governmental organizations pictures, maps as well as videos of ongoing humanitarian operations (Haavisto et al.2016, 261).

Informationa management is increasingly seen as a key activity in humanitarian response, and an enabler of more effective and efficient humanitarian operations (Van de Walle, Van Den Eede and Muhren, 2009). In this section, the author will look at the information management tools that provide information to support the management function of humanitarian logistics and the specific tools to support logistics process and tracking.

2.7.1 Assessment tools

As stated by Haavisto et al. (2016, 265), traditional assessments such as multi-cluster rapid needs assessment (MIRA) where design to provide fundamental information on the needs of end users and to support the identification of strategic humanitarian priorities. It is true that MIRA is supported by all stakeholders in the field but it needs considerable time as well as genuine effort for these data to be collected, standardized, verified, approved and then publishes. "For these reasons, MIRA serve as an instrument for advocacy with limited operational purpose and lack of granularity. As such, tools like kobobox or survey tools have been develop to address specific needs like the UNICEF Cholera Toolkit and iMMAP`s OASIS which still rely on humanitarians on the ground to collect data".

By 2010, remote humanitarian tools have been developing which help increase response of humanitarian operations in crisis situation. Such as volunteer and technical communities or networks that function as crisis mappers, Ushaidi, standby task force or humanitarian Open Street map which are categorized as the Digital Humanitarian Network (DHN). Furtherstill, Facebook, Twitter and google have separately launched safety check, Twitter alert and crisis map as tools to enable users around the world to provide and share real time useful information but the realm of needs assessment is still unclear, and often ad hoc (Haavisto et al. 2016, 266).

2.7.2 Coordination tool

Efficient disaster coordination is mainly facilitated through organizational structures, collaborative decision process and the contribution of advanced information systems all of which are highly interdependent (Chen et al. 2008). Logistics infrastructure however, may be affected by crisis, either because it is damaged or destroyed, or is still intact but nevertheless cannot be used due to security concerns (Kovacs and Spend, 2009).

As stated by Haavisto et al. (2016, 267), knowing who is doing what, where and when (called the 4W) has been among the most important tools for coordination use to provide important information for planning of humanitarian assistance. 4W maps is been used as a coordination mechanism to access information on movement, displaced persons and refugees in crisis situation.

However, in Nepal, Vanuatu and the Philippines, "coordination tools like the Humanitarian ID have been use in tracking humanitarian responders and automated updating of their location and responsibilities. Humanitarian ID therefore, provides a platform for decentralized updates of contact information where responders "check in" and "check out" through an app. Another disaster information platform like Sahana Eden focus on coordination and planning of humanitarian operations with inshrine tools responsible for missing person's registries as well as volunteer management" (Haavisto et al.2016, 268).

Figure 9: Humanitarian ID interface: Source: Haavisto et al. (2016, 267).

2.8 Key performance indicators in humanitarian logistics

Speed is an essential factor for the supply chain of disaster relief operation as well as the supply chain of a commercial sector. Studies from the US Army and business research journal have identified three principles of performance measurement systems which are applicable to the humanitarian sector namely; align metrics to the organization core strategy, understand the dynamics of how performance is driven and review the metrics periodically as performance improves (Davidson 2006, 3).

Davidson (2006, 4-11) suggest that, there are four KPI`s which can be use by humanitarian organizations to measure their response to relief operations and which has been examined by data of the 2005 South Asia earthquake operation by the international federation for the red cross. This KPI`s includs appeal coverage, donation-to-delivery time, financial efficiency and assessment accuracy respectively. The first KPI focus on how quickly an organization is finding donors and delivery items. The second metric measures the delivery time of items to destination country after donation pledges. The financial efficiency incorporate transportation cost as a ratio of total cost for delivered items at a point in time. Lastly, a quicker donation and faster delivery of goods to affected population after disaster has occur will depends on the assessment accuracy of the humanitarian personnels in the field. Therefore, the combinationation of these matrics are been use to form a scorecard to measure the organization operation and to deternmine if it's meeting the objective. How fast a humanitarian organization will respond to a relief operation will sole depend on the combination of these matrics and can be use in different ways by different kind of humanitarian organization.

2.9 Bureaucracy

A government action can have severe impact on international relief operations and openness to assistance can lead to timely delivery of aid while reluctance to receive assistance can have devastating consequences to the nature and lives of those trap in the crisis. The actions of these political actors have an impact on the inventory management and transportation activities of international humanitarian organizations (Kovacs and Spens, 2008; Long and Wood, 1995; Tomasini and Van Wassenhove, 2008; Menkhaus, 2010).

The role and impact of host governments in humanitarian logistics

According to Haider (2013, 14-18), the government, international humanitarian organizations and the global communities have mandatory obligations in humanitarian crisis which are outlined in various legal framework to properly protect and provide assistance to affected population in times of crisis. Based on this study, the author will focus on those

scenarios and legal responsibilities that involves only the host government and the international humanitarian organizations. In this context, the author is going to look on two issues regarding the legal framework that affects the operations of international humanitarian organizations and the host government during crisis situation. These are the sovereign consideration declaring state of emergency and mandatory obligation to allow free passage by international humanitarian organizations for assistance.

In the first scenario, if the host government decides to declare a state of emergency, especially in non-armed and civil armed conflict, this increase the speed and coordination by international humanitarian organizations operations since there will be limited bureaucracy. On the contrary, if the government decides not to allow access to the crisis because of its own interest but international humanitarian organizations decides to still come in because of the deplorable conditions of humanitarian needs, the government actions can indirectly slow the relief process as well as complicate customs procedures for IHO`s materials to avoid them achieve their goal (Long and Wood, 1995; Martinez and Van Wassenhove, 2013; Van Wassenhove 2006).

In the second senario, when caught in civil armed conflict, the international humanitarian organization is backed by human right laws to have free passage of humanitarian supplies from the host government but when caught in international armed conflicts, international humanitarian organizations gain automatic access from the host government because there is no provision in the legal framework stopping them from doing so. It is important to note that these are the immediate scenario that determine the speed to respond by international humanitarian organizations (Kovacs and Spens, 2009; Pettit and Beresford, 2005). Bureaucracy in humanitarian logistics operations between international humaniatarain organizations and host government framework as established by Van Wassenhove et al. (2016, 12).

Table 8: Host government stance towards humanitarian logistics and its implications.Adapted from Dube et al. (2016, 12).

	Uncompromising: Most challenging	**Selectively accommodating:**
High	■ Host government highly limits IHO response using regulations and acts of sovereignty ■ Tight control on inventory management using custom duties ■ Limit timing of movement in control area	• Host governments impose some limited actions on IHO decisions through regulations but which are accommodating • Moderate control on inventory management which leads to increase lead time • Regulations and acts affects transportation scheduling decisions
Tension between interest & regulations And enforcement capabilities	**Opportunistic:**	**Non- Restrictive:** Least challenging
Low	• Delivery performance of IHO are sometimes negatively impacted by acts attributed to opportunistic behavior • No regulations or acts of sovereignty which impact inventory management and transport decisions	• Host government does not control or regulate the bulk of IHO activities • No regulations or acts of sovereignty to impact inventory management and transportation decisions

Dependency — Low .... High

Low if regulations & enforcement capabilities are low OR if tension between interests is low
High if both tension between interest AND regulations and enforcement capabilities are high

The theoretical framework for the study have been illustrated in the figure thereafter which begins with the research question of the research, followed with the main theory and ends with the theories of the investigative questions examine.

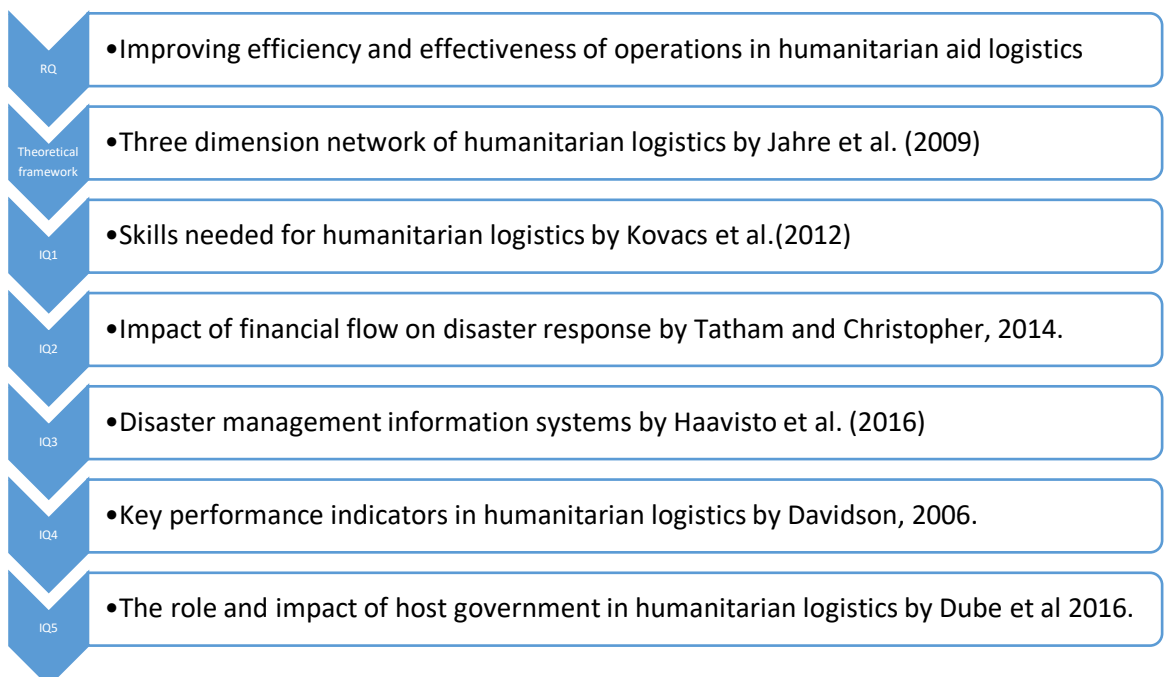|	
RQ	• Improving efficiency and effectiveness of operations in humanitarian aid logistics
Theoretical framework	• Three dimension network of humanitarian logistics by Jahre et al. (2009)
IQ1	• Skills needed for humanitarian logistics by Kovacs et al.(2012)
IQ2	• Impact of financial flow on disaster response by Tatham and Christopher, 2014.
IQ3	• Disaster management information systems by Haavisto et al. (2016)
IQ4	• Key performance indicators in humanitarian logistics by Davidson, 2006.
IQ5	• The role and impact of host government in humanitarian logistics by Dube et al 2016.

Figure 10: Theoretical framework of the study.

3   Research Methodology

The focus of this chapter is on the method used and the reason why the author believes is the most suitable in collecting the data for the study.

3.1   Research approach

The study will be undertaken in Finland and employees of the target organizations will be development cooperation organizations and agencies involved in the implementation of humanitarian aid relief programs and projects in disaster-prone countries and regions around the world. Furthermore, academic expert in humanitarian logistics and expert working in humanitarian organizations will be also target inorder to compare and contrast data obtain from employees, humanitarian organization expert and the academic expert of humanitarian logistics.

The research is a quantitative study which seeks to find ways to improve efficiency and effectiveness of operations in humanitarian aid logistics by development cooperation and humanitarian organizations in Finland. These development cooperation organizations in Finland working in humanitarian aid abroad will include: Finn Church Aid, Finnish Red Cross, UN Association of Finland, and The Finnish NGO Foundation for Human Rights or KIOS Foundation, Amnesty International - Finnish Section, Finnish Refugee Council, Fida International, Save the Children Finland, World Vision Finland, and Plan International Finland etc. The relevant humanitarian organizations are identified using various sources, such as internet searches, member list of various associations of organizations, and registered charitable organizations in Finland. The choice of these organizations is based on basic knowledge about their humanitarian aid logistics activities in the immediate emergency response and in the longer term of humanitarian assistance abroad. The identified organizations were further chosen based on the strength of their scope of logistics activities and annual budget and Finish organizations that have signed a framework partnership agreement with the European Commission's Directorate-General for Humanitarian Aid and Civil Protection (ECHO).

3.2   Research design

The research process was design only for an online survey where the author develop and send questionnaires through webropol to employees of both development cooperation and humanitarian organizations. However, because the author didn`t received sufficient reply (responds) to the questionnaires, I decided to conduct two interviews involving an academic expert in humanitarian logistics and an expert with several years of experience

working in humanitarian organizations inorder to improve the validity and reliability of the research results when compare with that of the online questionnaires. Furthermore, a desktop research was used to make inferences and analyze the relevant topic of the subject area.
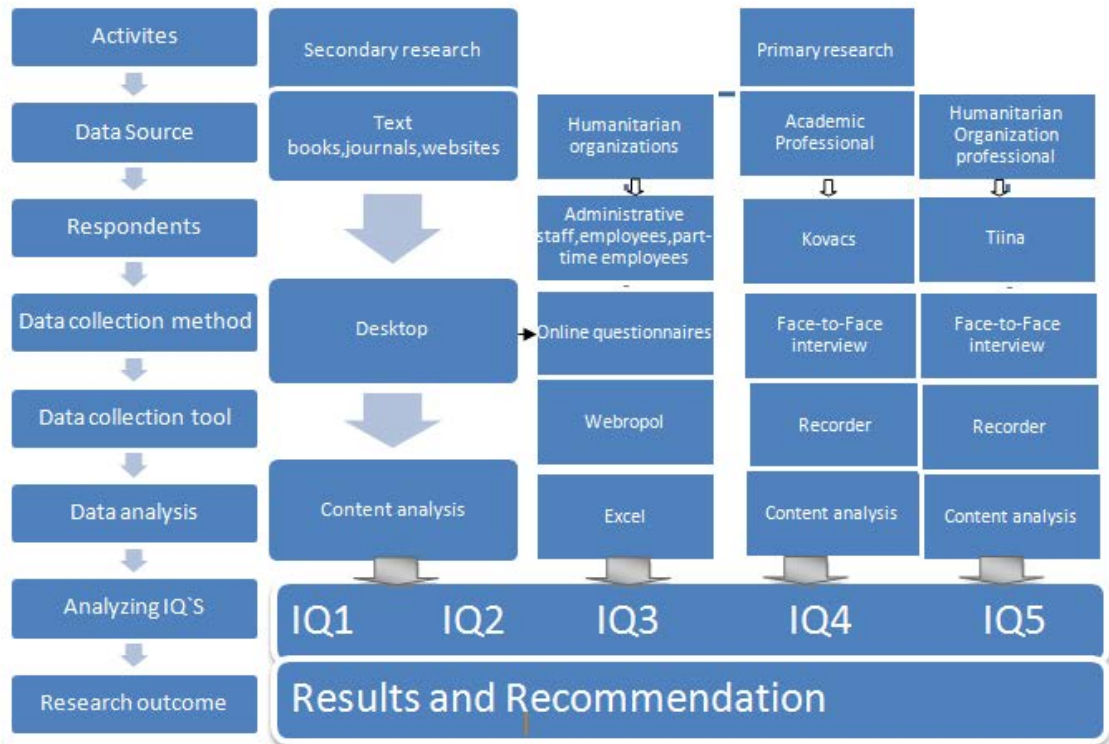

Figure 11: Research design

3.3   Data collection

Data collection for this study involved both secondary and primary data. This will involves three stages: Desktop research, online questionnaires and face-toface interview with an academic expert in humanitarian logistics as well as an expert working in humanitarian organization. Both close-ended questions and semi-structured interview were used. Close-ended questions were use to obtain more concise information while saving time and the likelihood that most of the employees in the humanitarian organizations are perceived to have limited knowledge about the indepth of the field of study. Also, semi-structured interview was chosen to allow flexibility to the respondents (experts) inorder to generate key important information (Saunders, Lewis & Thornhill 2009, 320).

As stated by Harrell and Bradley (2009, 75), interview data can be capture by note-taking or audio recording. The author and the interviewees agreed for the interview to be recorded and the information to be later transcribed to word document without any alteration.

3.4 Primary data

The primary data of the study was collected in two forms. This was through online questionnaires and by a face-to-face interview. Webropol was the tool use for the online questionnaires and the face-to-face interview was conducted with Gyongyi Kovacs (Erkko professor in humanitarian logistics, Hanken) and Tiina (an experience employee with the Finnish Red Cross for over nine years) who decides to stay undisclosed because she says her views is base on her personal experience not the one of the organization she work. The author choose to obtain both online and interview data to mitigate the effect of low responds rate that occur with the online questionnaires and to increase the value and quality of the result of the study when compared with the views of the expert interviewed.

Inclusive primary data (online questionnaires, Kovacs & Tiina`s interviews)

The collected primary data shows that there was a major need for logistics training and skills for humanitarian organizations employees in Finland. Also, the need for some basic business skills as well as healthcare knowledge was mentioned.

There were some desparity as to the source of funding by humanitarian organizations in Finland. However, the data shows there was a hunanimous decision for contigency funds and collaboration to help increase response amongst humanitarian organizations. Furthermore, the response data indicates that tools for response can be ICT or non-ICT tools. Non-ICT tools are used for management and coordination at the early phases of disaster when telecomme have broken down and ICT tools are used after some level of telecomme systems have been established.

The primary data also shows a deep divide as to what to measure (KPI) in a disaster operation by humanitarian organizations in Finland siting reasons for independent goals and objectives by these organizations. However, even though there was an agreement that something is been measured, its still depends on individual organizations.

Also, the data shows that government role impact differently depending on whether it is a man-made disaster or natural disaster with regards to responds by humanitarian organizations. Importantly, is the emergency regulations that completely stop government intervention into humanitarian organizations operations.

As a whole, the primary data potrays swift funding, disaster preparedness and the right mix between delivery items versus cash as paramount to enhance disaster response by humanitarian organizations in Finland.

3.5 Secondary data

Saunders, Lewis and Thornhill (2009, 257-259) explains that, secondary data can include journals, books and data such as organizational and governmental information and report previously gathered. In thesame context, for this study, the researcher collected secondary data from a variety of sources such as journals, books, webpage of development cooperation and humanitarian organizations, governmental publications, European Commission's Directorate-General for Humanitarian Aid and Civil Protection, HUMLOG institute as well as relevant newspaper in order to obtain valuable and substantial amount of reliable data related to the research subject.

3.6 Data analysis

Powell and Renner (2003, 2-5) explians that, once data is obtained, the researcher must familarize themselves with it, categorize the information, identify patterns and then move forward to interprete these obtained data. The primary data obtained through online survey was be transfer from Webropol to Excel, categorized and patterns identified. This data was then analyzed using Excel and the results are been presented as figures and tables. The data that was retrieved through the interview process with Tiina and Kovacs was categorized and appropriately used to answer the research questions upon detail interpretation by the researcher. The researcher also perform some content analysis of the generalized challenges in humanitarian logistics in different studies that has acted as part of the conceptual framework for this study.

4   Results

This chapter is focus on the results of the research. The result is base on the perspectives of humanitarian organizations employees as well as some experts in the field of humanitarian logistics in Finland. This involves analyzing the responds of the respondents on some key indicators of the questionnaires and interviews as well as ranking them base on the judgment of their expertise.

4.1   Background information about the online respondents

The background information of the respondents seeks to make analysis about the age, percentage of respondents in by humanitarian organizations and the employment status of their various staffs.

From figure (12) below, most of the respondents (35) for the online questionnaire are aged between the age group 35 to 49; follow by 28 respondents for the age group 20 to 34 and 14 respondents for the age group 50+ respectively. Based on the total respondents in figure (12), it can be inply that most of the employees working in humanitarian organizations in Finland are in their very active age (20-49) with just a small fraction (14) who is at the less active age (50+).
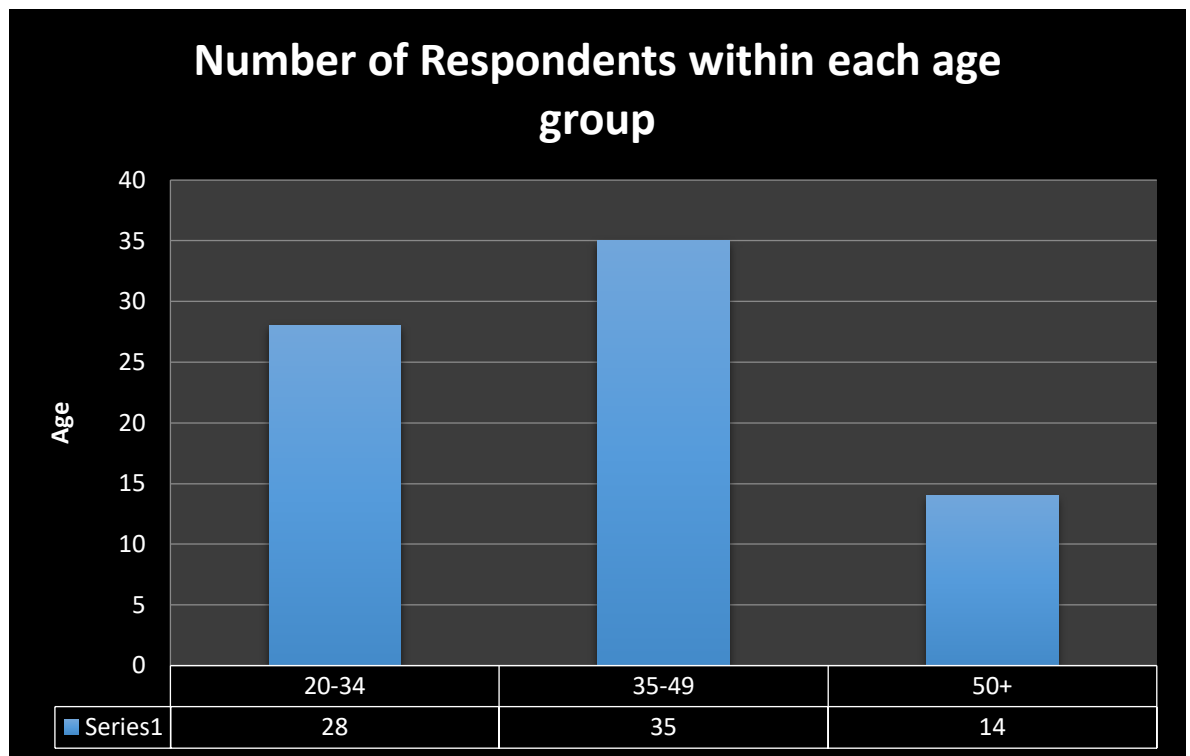

Number of Respondents within each age group

	20-34	35-49	50+
■ Series1	28	35	14

Figure 12: Number of respondents within each age group.

The questionnaire was send online to several employees (administrative staffs, permanent employees as well as part-time employees) of humanitarian organizations across Finland and their respondents' percentage are shown in Figure (13) below. As a summary of the respondents by humanitarian organizations who took part in the study, Finnish committee for UNICEF was (27%), Finn church aid (25%), Plan international Finland (21%), Fida international (9%), KIOS foundation (6%), Siemenpuu foundation (5%), Save the children Finland (4%) and (3%) constitute other humanitarian organizations whose names where not mention on the questionnaire. The most employees who participated in this study as shown by figure (13) above are the employees of Finn church aid, Plan international Finland and the Finnish committee for UNICEF respectively.
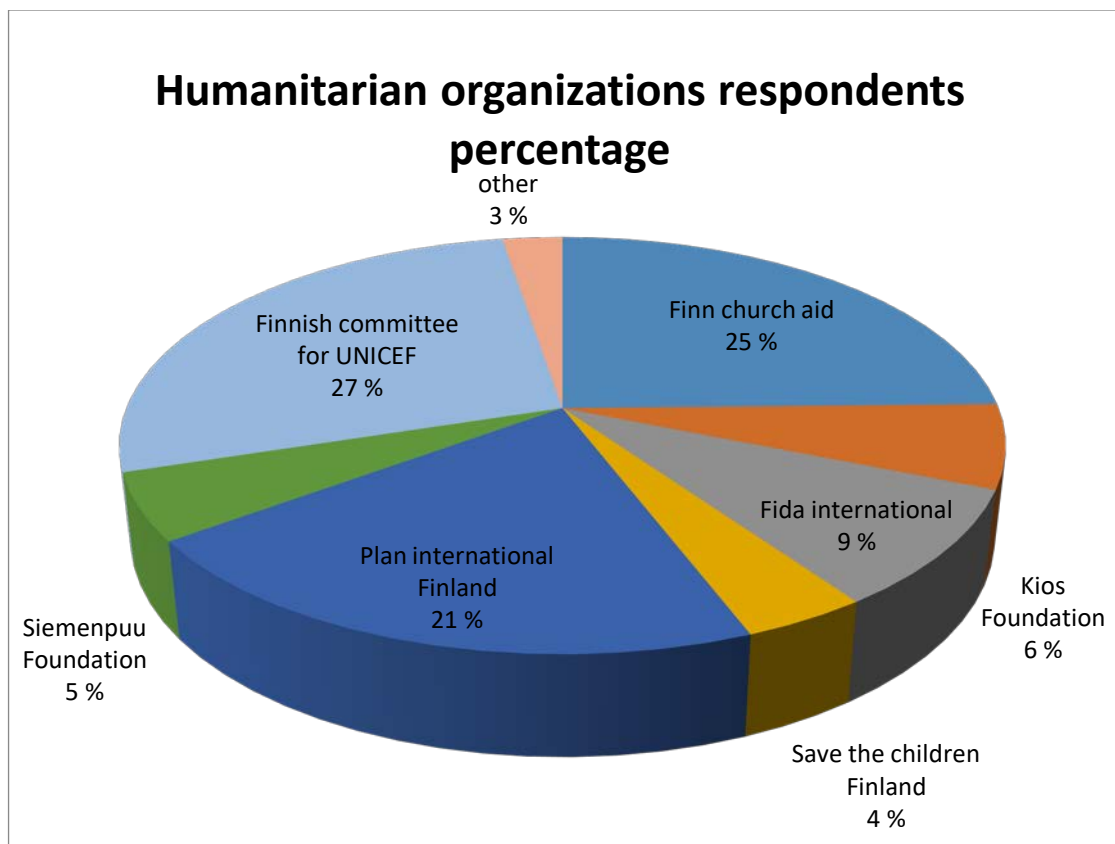

Figure 13: Humanitarian organizations respondents' percentage.

From figure (14) below, among the total respondents of the online questionnaire, forty six percent (46%) of them were administrative staffs, thirty six percent (36%) permanent employees and eighteen percent (18%) constitute part.time employees/trainee respectively.
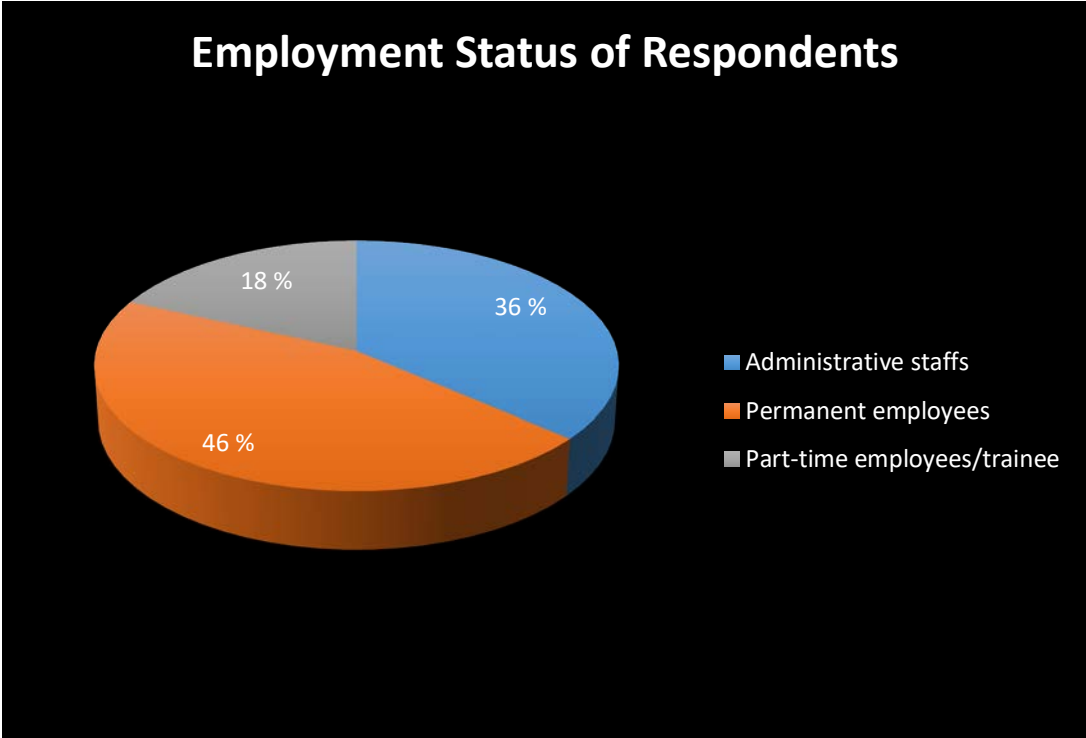
Figure 14: Employment status of respondents.

4.2 Investigative question (IQ1)

This investigative question seeks to sort the skills needed by humanitarian organizations in Finland based on their area of specialization. From figure (15) above, the respondents suggest that the top five (5) skills needed by humanitarian logisticians are procurement (21%), inventory management (18%), fleet management (15%), and coordintion (12%) and transport/shipping (12%) respectively. However, these skills as well reflect the traditional skills of commercial logisticians.
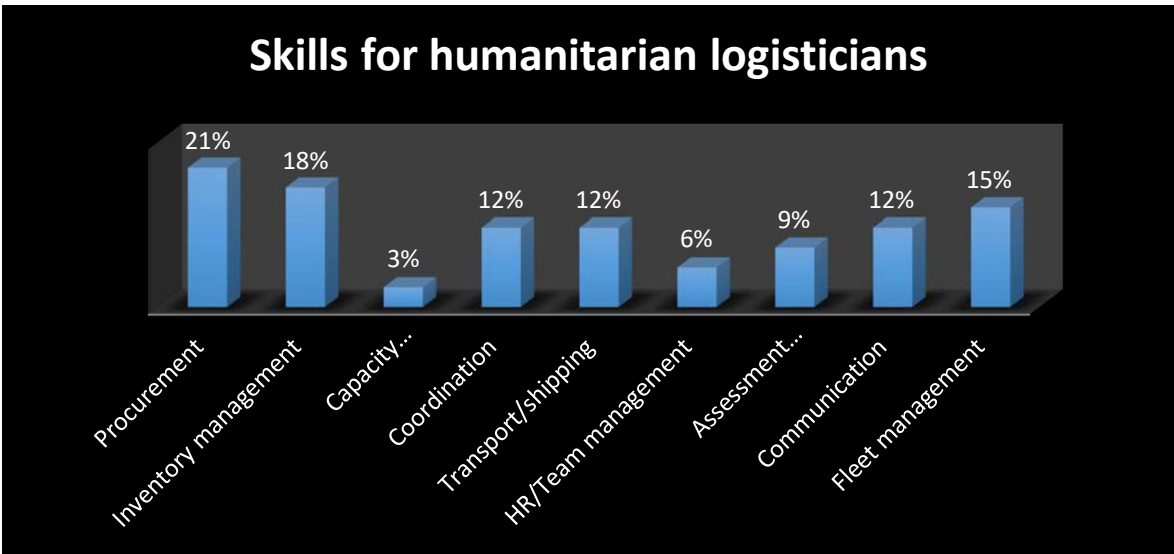

Figure 15: Skills for humanitarian logisticians.

As suggested by the respondents, the main training for humanitarian logisticians are tradi-
tional logistics training (18%) followed by humanitarian principle and standards (15%) as
well as lower knowledge of other fields as shown in figure (17) below.
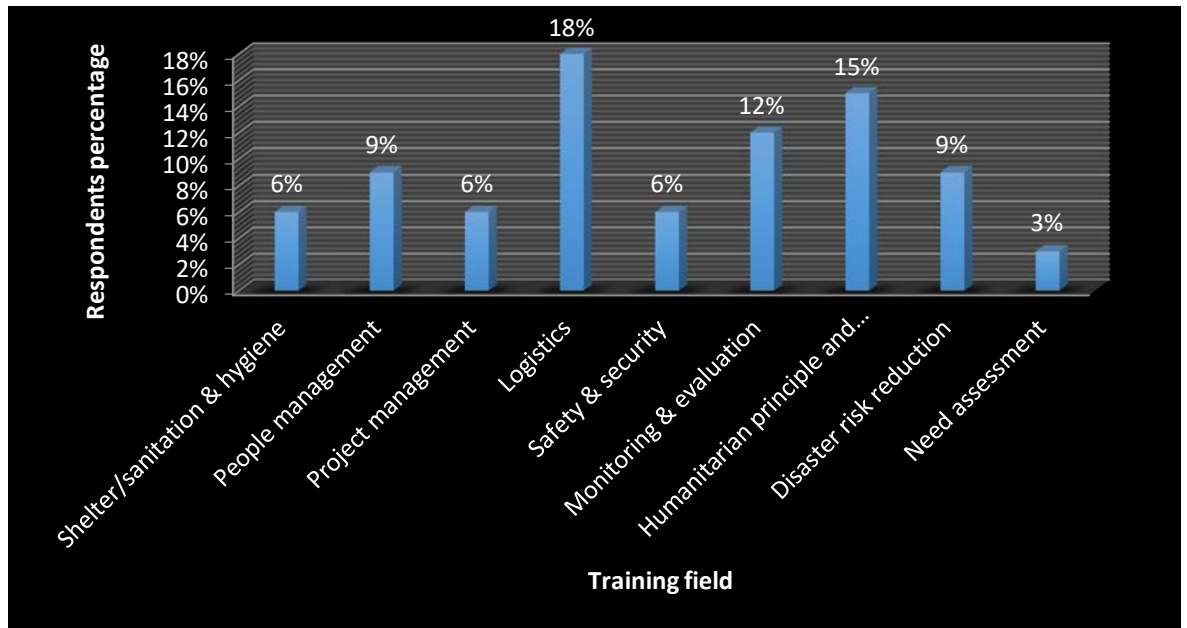
Figure 16: Training for humanitarian logisticians.

4.3   Investigative question (IQ2)

Means of acquiring and speeding up availability of fund by humanitarian organizations
was the key component of this investigative question. From figure (17) below, the re-
spondents stated that the best way to speed up funding for humanitarian operations is
mostly through humanitarian donorship initiatives (28%) as well as joint fund raising. This
can be regular private or public donations as well as organize fund raising campaigns.

Figure 17: Means to speed up funding.

4.4 Investigative question (IQ3)
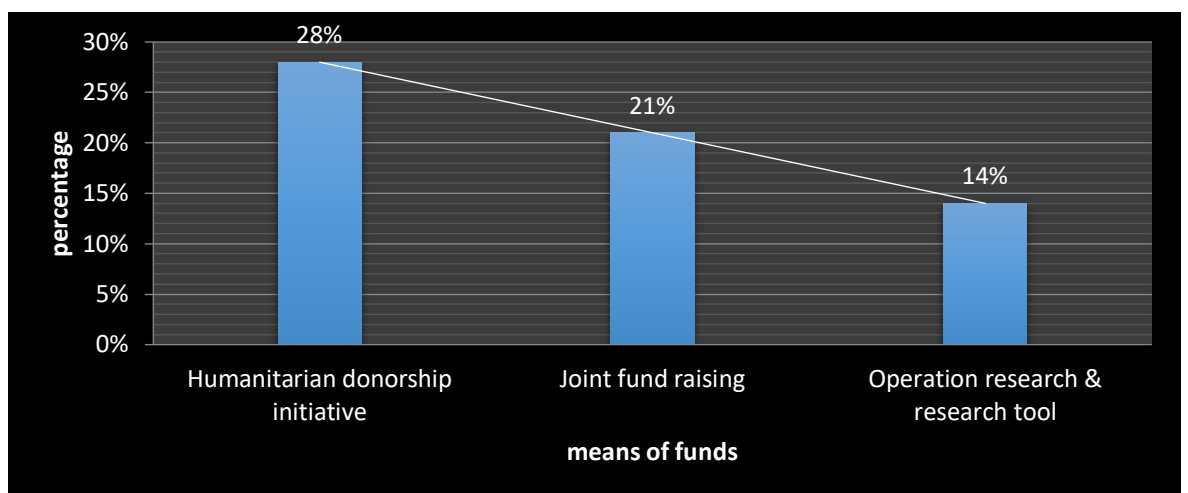
This investigative question seeks to explore the information management and coordination tools use by humanitarian organizations in Finland in their attempts to address humanitarian needs in disaster operations.

As observed in figure (18) below, amongst the ICT tools mention in the questionnaire, the respondents suggest that crisis mappers (42%), visibility & tracking systems (35%) and humanitarian open street map (21%) are the most relevant to improve humanitarian employees operation work.
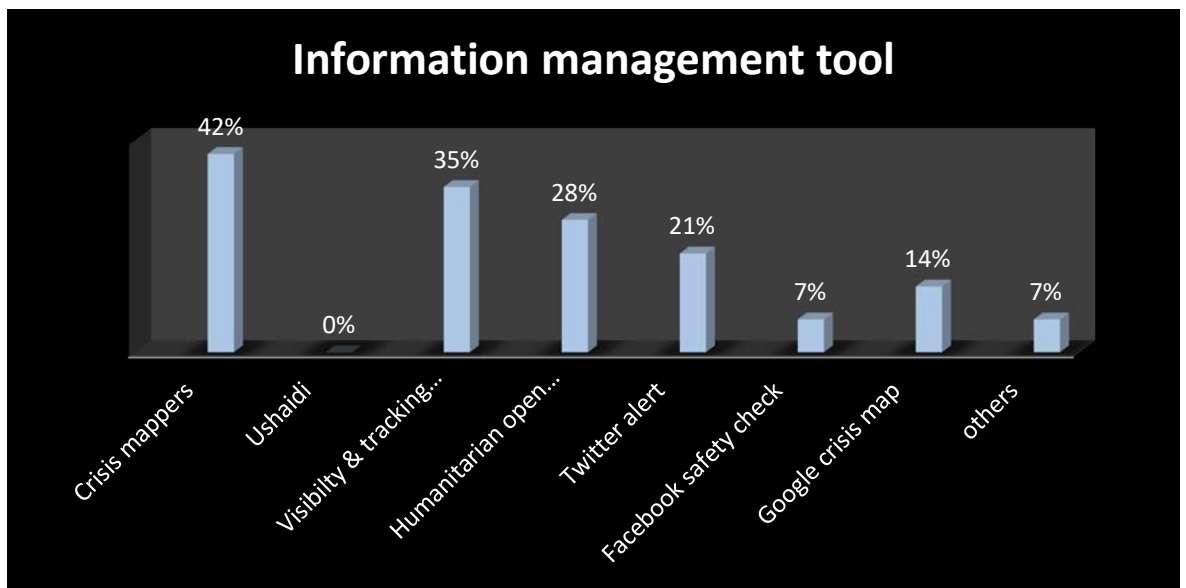
Figure 18: Information management tool

Figure (19) below illustrate the coordination ICT tools. As per the coordination ICT platforms mention in the questionnaire, the respondents suggest that the humanitarian ID (56%) and 4W maps (15%) are the most common coordination tools used by humanitarian employees for field operations.

	Sahana Eden	Humanitarian ID	4W maps	others
Series1	5%	56%	15%	1%

Figure 19: Coordination ICT tool

4.5 Investigative question (IQ4)

This investigative question seek to find which key performance indicators humanitarian organizations in Finland are using in measuring their performance as well as the methods used.

From figure (20) below; amongst the five key performance indicators mention in the questionnaire, the respondents suggests that duration-to-delivery time (35%), financial efficiency (35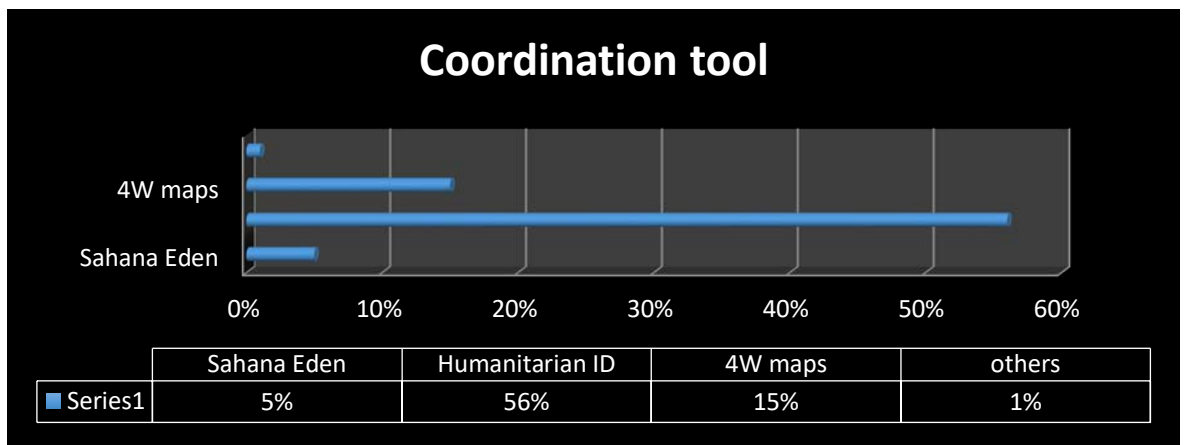%) and appeal to coverage (28%) are the most that impact on the responds by a humanitarian organization to disaster operations.

KPI which increase responds

	Appeal to coverage	Duration-to-delivery time	Financial efficiency	Assessment accuracy	other
■ Series1	28%	35%	35%	14%	0%
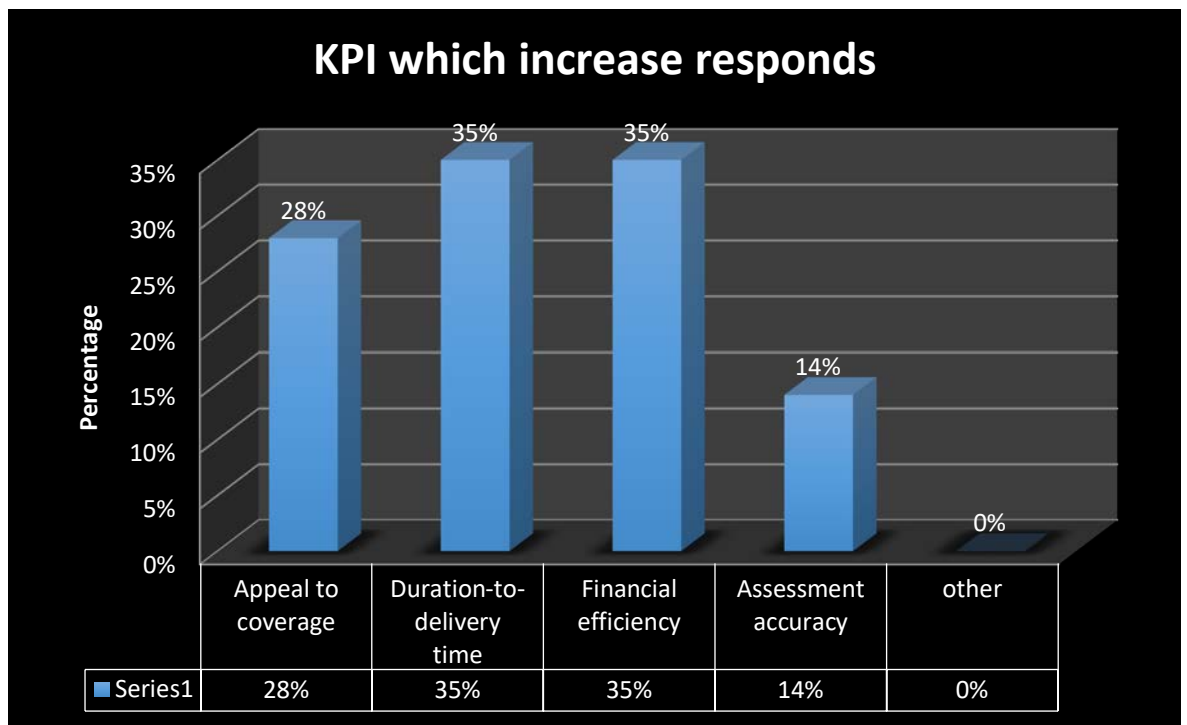
Figure 20: Indicators which help to increase responds

As regards measuring performance of humanitarian organizations in figure (21) below, the respondents do not agree with the indicators that were mention in the questionnaire. They suggest that there are other indicators (28%) which humanitarian organizations are using in measuring their operation performance. The choice of other indicators which humanitarian organizations are using in measuring their operation performance largely depends on the goals and objectives of that organization as well as what they intend to achieved in the specific disaster operation.
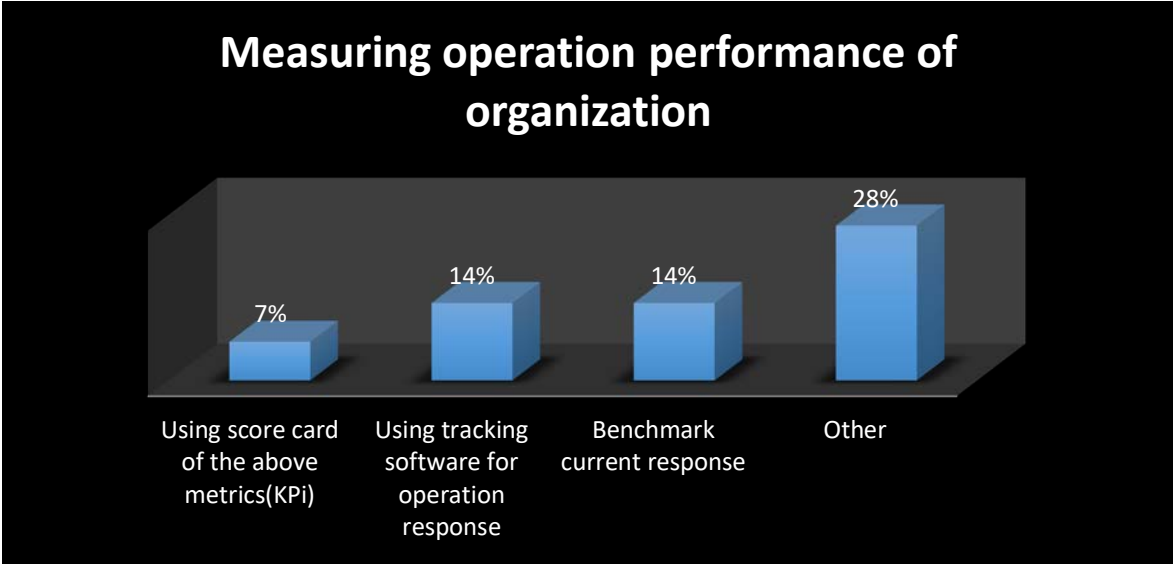
Figure 21: Measuring performance of humanitarian organizations.

4.6   Investigative question (IQ5)

This investigative question focuses bureaucracy and its impact on humanitarian organizations in carrying out operations in disaster situation. From figure (22) below, the respondents suggest that bureaucracy impact responds to humanitarian operations for humanitarian organizations through government intervention (36%), long registration procedure (27%) and increase cost (11%) respectively. This implies that government intervention to the activities of humanitarian organizations has the most severe impact to these organizations interms of response with some of its visible effects like long registration procedures.

	Hindrance and delays	Increase cost	Long registration procedure for organizati...	Government intervention	other
■ Series1	5%	11%	27%	36%	0%

Figure 22: Bureaucracy to humanitarian organizations

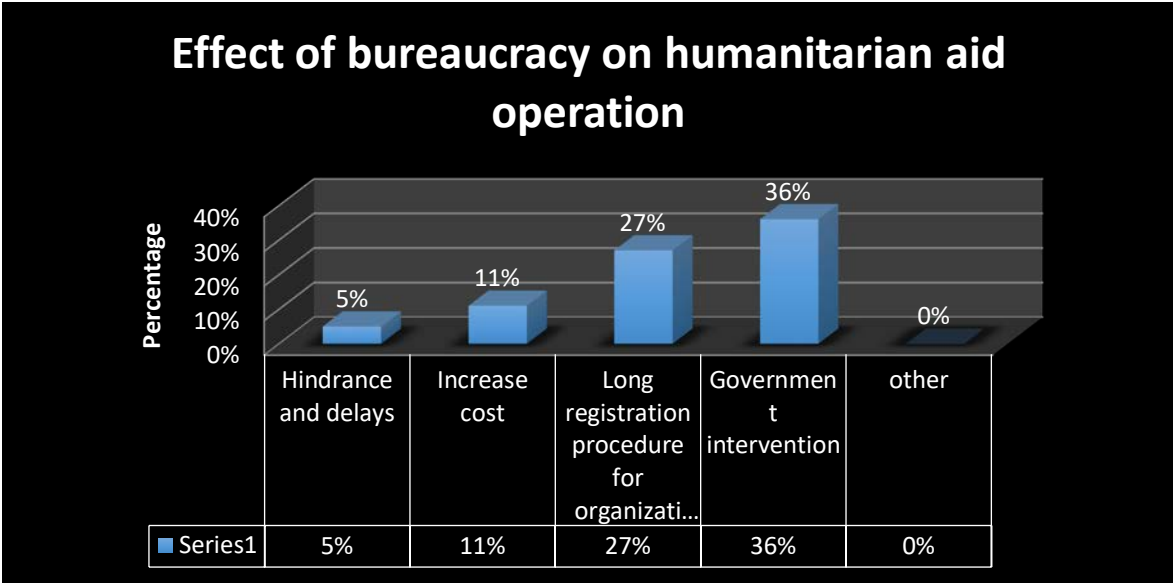From figure (23) below; the respondents suggest that, in order to improve humanitarian organizations operation, there should be efficient disaster preparedness (48%), proper humanitarian systems and collaboration (48%) as well as effective disaster relief management (21%). As a take-away point by the humanitarian organizations respondents, the key functions by humanitarian organizations to increase response in an operation is disaster preparedness, humanitarian systems and collaboration as well as disaster relief management.
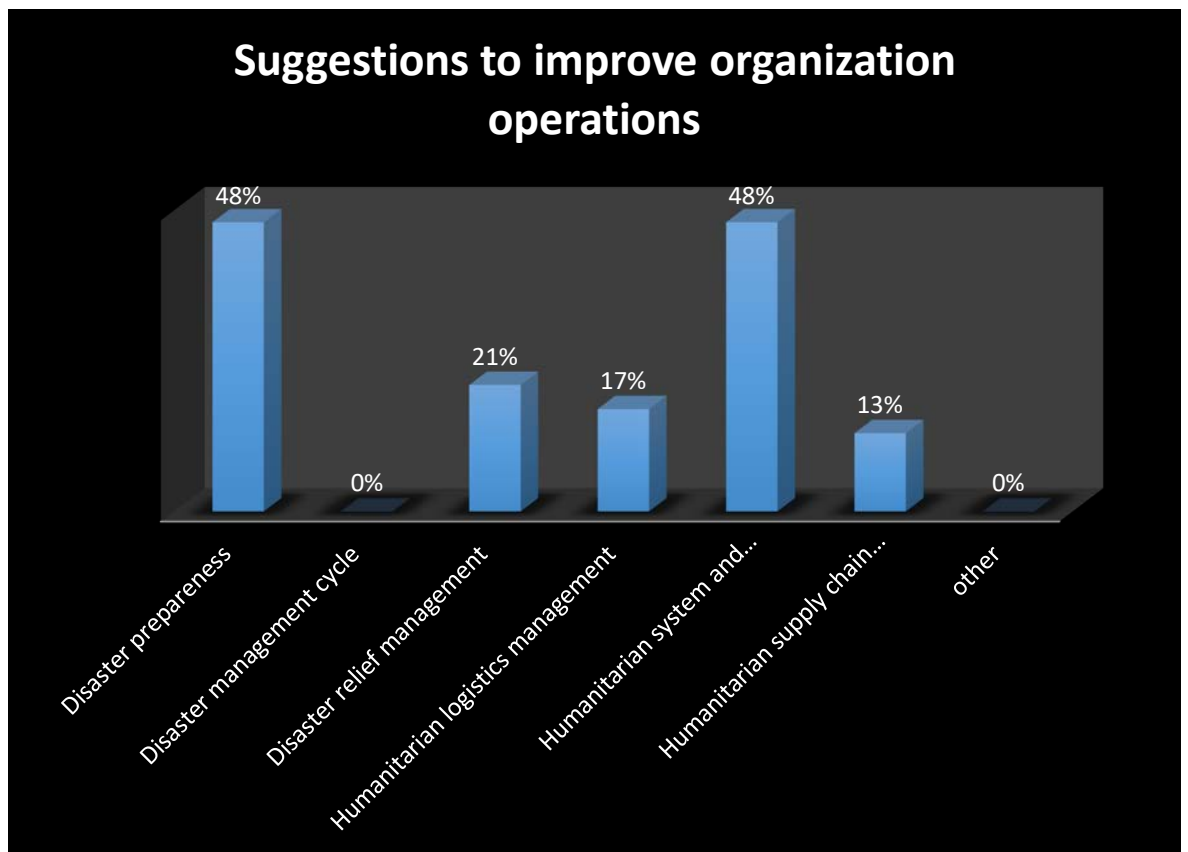
Figure 23: Suggestion to improve humanitarian organization operations.

4.7 Academic professional (Kovacs)

The data for Kovacs interview was analyze using content analysis and the resulting outcome was outline in five paragraphs. In a descending order, paragraph one depict the results for investigative question one right down to paragraph five depicting the result for investigative question five. The result for Kovacs interview was as follows;
The skills for humanitarian logistics and commercial logistics are thesame but certain skills are been emphasize to humanitarian logisticians like inventory, warehouse, transportation

management (lead management and maintainance) and some lower level skills. The training for humanitarian logisticians and commercial logisticians are thesame but with context specific skills training acquire in humanitarian organizations.

Some humanitarian organizations have contigency funds to begin responds before they seek external funds, they have endavors like forecast base finance to start collect funds before disaster strike and to collaborate with donors for fast donations. Humanitarian organizations can only respond when they have funds and not if they don`t have fund.

Most humanitarian organizations have enterprise resource planing systems with supplier, information tools to monitor their staff and stock, talk to one another all of which will impact on circle time when you order materials. The cluster systems, pen and paper are the coordination tools at the early days of disaster when there is no telecome system. There after, ICT tools can apply to speed operations.

Humanitarian organizations have different key performance indicators and it depends on what they measure. They measure lead time, cost in relation to donation pull back, appeal coverage, duration-to-delivery time etc.

Governments have regulations to cut bureaucracy in humanitarian organizations for natural disasters. Governments have bureaucratic machinery to regulate humanitarian organizations day-to-day operations as well. Humanitarian organizations have emergency mode that are back by emergency regulations stoping governments from interferance.

To conclud, how much humanitarian organizations deliver as items versus how much they deliver as cash is a major called for concerned. To find the right mix as well as what key performance indicators to be measured will improve humanitarian organizations operations.

4.8 Humanitarian organization professional (Tiina)

The data for Tiina`s interview was as well analyze using content analysis and the resulting outcome was outline in five paragraphs. In a descending order, paragraph one depict the results for investigative question one right down to paragraph five depicting the result for investigative question five. The result for Tiina`s interview was as follows;
Humanitarian logistcians need skills such as warehousing, technology, transportation, procurement and material handling. Basic business skills and healthcare knowledge are recommended. Humanitarian logisticians and commercial logisticians have similar training but the later need additional organizations specific inhouse training.

"We" (Finnish Red Cross) have funds from humanitarian aid department of European commission, foreign ministry, private companies as well as individual donors. Finnish Red Cross have relief emergency fund, regular private donations and other funding collection campaigns like Hungerday-collection.

Information communication technology tools helps the red cross coordinate with their staffs and later with other organizations when pattern have been establish at the disaster area. Some of the tools used includs field assessment coordination team, vulnerability and capacity assessment, smart phones, crisis mapps, different platforms and apps.

The chosen key performance indicators depends on what has to be measured and the goal to be achieved. Most common measurements are cost and delivery time to emergency locations.

International regulations have facilitate responds like the emergency regulations. Also, government's interest in man-made disasters slow responds for humanitarian organizations.

To conclud, funds and its swift availability impact the size of coverage and responds for humnitarian organizations as a whole.

Table 9: Summary of research results from the primary data

Activites	Online questionnaire results	Kovacs interview results	Tiina`s interview results
IQ1	Skills: procurement, inventory mgt and fleet management. Trainiging:logistics	Inventory,warehouse, Transportation(lead mgt & maintainance) Commercial logistics	Warehousing,technology, Transportation,procurement And material handling Logistics & basic healthcare knowledge
IQ2	Humanitarian donorship initiatives, joint fund raising	Contigency funds Collaborate with donors for fast donations	European commission, foreign ministry, companies and individuals. Emer-

			gency funding,campaigns and regular donations
IQ3	Crisis mappers, visibility & tracking systems. Humanitarian ID & 4W maps	ERP systems Cluster systems Pen & paper ICT tools	Assessment coordination team,vulnerability & capacity assessment,crisis maps,smart phones etc
IQ4	Duration-to-delivery, financial efficiency. Disagree on what to measure	Different KPI to measure. Lead time, cost in relation to donation pull back, duration-to-delivery time etc	Different KPI Delivery time to emergency location
IQ5	Government intervention, registration procedures	Government regulations for natural disaster, bureaucratic machinery to regulate day-to-day operations & emergency regulations	Emergency regulations Government interest in man-made disaster slow responds
Suggestions	Disaster preparedness, humanitarian systems and collaborations	Right mix of delivery item versus cash delivery, right KPI to be measure	Funds and its swift availability

5 Conclusions

5.1 Key results

The results are base on the perspectives of respondents of humanitarian organizations employees and interview data of some experts in humanitarian logistics.

The result for IQ1 suggests that procurement, warehousing, inventory management and transportation are the major skills needed by humanitarian aid employees. Also, they require training for traditional logistics employees with some context specific training depending on which humanitarian organizations they are working. This results suggest that, humanitarian organizations in Finland employees will need logistics skills and training with some specific in-house training regarding their needs to function properly in humanitarian aid operations.This result affirms Kovacs et al. (2012, 249) which states that humanitarian logisticians needs functional logistics skills and some humanitarian context specifics to function properly in a response operations.

The result for IQ2 indicates that humanitarian donorship intiative, emergency fund, and contingency funds are the best ways to speed response by humanitarian organizations. However, the respondents suggests that regular donations, funding campaigns, joint fund raising and collaboration with donors for fast donations is the feasible means to make availability of swift finance to response to humanitarian operations. The result support the findings of Development Initiatives (2009a) which suggests that the speed and timing of response by humanitarian organizations depends on how quickly they can get funds. This has made many organizations to resort to emergency funding for preperformance before they start seeking external resources.

The result for IQ3 suggests that ICT tools for management and coorination such as humanitarian ID, 4W maps, crisis mappers, visibility & tracking systems, smart phones and ERP systems helps speed up response in humanitarian operations. However, the study also indicates that there are non ICT tools such as the cluster systems, assessment coordination team as well as pen and paper which speed up operations in the early stages of disaster when the telecome systems is broken down.

The result for IQ4 indicates that duration-to-delivery time, delivery time to emergency location and lead time are some of the indicators that humanitarian organizations use in measuring their operations. However, the respondents fail to agree on a common indicator which all humanitarian organizations use in the field to measure their response to opera-

tions. They suggests that the nomenclature and objectives of these organizations are different as well as the goals to attained in a disaster operations, therefore this makes it impossible for them to have the same measurement indicators.

The result for IQ5 suggests that government regulation for natural disaster and emergency regulations for organizations emergency mode helps cut bureaucracy and increase response in humanitarian aid operations. However, government intervention, their interest in man-made disaster and bureaucratic machinery to regulate day-to-day operations of humanitarian organizations helps to slow response. For instance, the Iranian earthquake of 12th November 2017 kill atleast 437 people, injured more than 10000 and destroy over 30000 homes but the government decline any foreign assistance despite the deplorable situation because of political interest (British Broadcasting Corporation, 2017).

In a big picture, disaster preparedness, humanitarian systems and collaborations, funding and its swift availability, finding the right mix of delivery items versus cash delivery as well as right KPI`s to be measured are some of the suggestions made by the respondents to improve response of humanitarian organizations operations.

Humanitarian logistics today face critical challenges as the number of crisis keep on rising with limited resources to address them. One can conclude base on the research result that improving efficiency and effectiveness of operations in humanitarian aid logistics will required skilled and train humanitarian logisticians, contingency fund and collaboration with donors, coordination and ICT tools as well as limited government intervention. In this regards, humanitarian organizations in Finland with their resources (both human and financial) will be able to increase their response to humanitarian aid operations both at home and abroad.

5.2   Recommendations

This study seek ways to improve efficiency and effectiveness of operations in humanitarian aid logistics by sorting out opinion and perceptions of various actors working in a wide spectrum of humanitarian organizations as well as interviewing a renown professor and author in humanitarian logistics. After reading several theories and talking to this professionals, it becomes very clear that the complexity of operations in natural disaster is different from that of man-made disaster. Therefore, I would recommend that a further research be conducted seperately for natural disaster and another for man-made disaster to measure the responds of how humanitarian organizations can improve their operations. This will give a more concise results patterning to natural disaster or man-made disaster and what need to be done to better organizations response. For instance, the Finnish humanitarian organizations (such as the Finnish Red Cross, Plan international Finland and Save the children Finland) involves in all kinds of disasters (be it natural or man-made) whereas

others (like Finn church aid, Siemenpuu foundation, Kios foundation, Fida international Finland and UFF Finland) do not invovle in disaster operations. Therefore,to improve operations in humanitarian aid by humanitarian organizations in Finland, this two categories should be preferably examine sepeartely for more concise results as stated above. Another important issue to mention is that, this research study make use of employees of all facets of humanitarian organizations across Finland. However, these humanitarian organizations have different areas of specialization in performing their operations. Therefore,it would be good to conduct a context specific research for organizations in a particular classification as to have a more workable outcome. For instance, a basic classification can be made on what some of the humanitarian organizations are focusing on in Finland is necessary. There are those performing humanitarian aid operations relating to the environment (such as Siemenpuu foundation Finland and UUF Finland), others providing response in relation to women and children (Save the children Finland, Plan international Finland and Finnish committee for UNICEF) as well as those in relation to human rights and legal aspects (Finnish refugee advice centre, Amnesty international Finland and KIOS foundation).

5.3   Reliability and Validity

Reliability is when the same research with the same resources and the same approaches are conducted by another researcher the same results are expected to be obtained. While validity is ensuring that the pre-determined requirements and methods are followed during the implementation of the research. In other words it refers to procedure and consistency of the study (Saunders, Lewis & Thornhill 2009, 156-157). The author have ensured that the secondary data have been collected from reliable sources such as academic books, journals, articles as well as from credible websites. As required by Haaga-Helia guideline for writing report, all materials that were used for the secondary data collection have been mentioned in both in-text and in the list of reference as demanded. By this, it ensures that all used sources are reliable and based on theories as well as professional's perspective, and to give the readers confident to rely on the research and to go back to the original source for more information if deem necessary.

The author in collecting the primary data follows the mandatory requirements for conducting a qualitative research. All the names and positions of the professionals interviewed during the research are included in the research paper, except for the Red Cross professional who did not allow to explicitly exposing her name in the research paper. Furthermore, in analysing the data, the author ensures that all the responses from the interviewees have been summarized without editing or changing anything from their point of view.

5.4 Limitations

There have been some few hurdles encounter during the research process but which was sovled in due time. Most humanitarian organizations professionals are not willing to share information saying either they don`t have time or they don`t know the kind of information to release for public consumption. That makes it challenging to have as many interviews with humanitarian organizations professionals as may have been intended. Also, there issue of limited broad knowledge about the subject area by humanitarian organizations employees working in the field.

Furthermore, questionnaires were sent by ending June which summer holiday was making it difficult to get quick reply from respondents. Majority of the respondents only reply to questionnaires only between September and October. Also, shorter interview times were granted by the respondents for you to interrogate them for all the information you need. This required special interview skills which were challenging to have maximum information as you may have wanted.

5.5 Suggestions for further research

Humanitarian operations have three phases namely; preparation, immediate response and reconstruction/recovery phase respectively. On a broad dimension, Finnish humanitarian organizations fall under two categorization namely; those that carry operations before, during and after a disaster/crisis (covering all the phases) and those that perform operations only after disaster/crises (reconstruction/recovery phase). Majority of the Finnish humanitarian organizations belongs to the recovery phase (such as Finn church aid, Finnish committee for UNICEF, KIOS foundation, Siemenpuu foundation, Fida international Finland, UFF Finland, Finnish refugee advice centre etc) and just a few that belong to all the phases (Finnish red cross, Plan international Finland, save the children Finland etc). Further studies could be done to examine "improving efficiency and effectiveness of operations in humanitarian aid logistics" in this two sepearte categorization. Firstly, a separate research for those Finnish humanitarian organizations that carryout humanitarian aid operations in all three phases and secondly, for those that carry aid operations only for the recovery phase. The scope, size, duration, financial outlay and challenges of these two scenarios will certainly have a different impact on response to operations. In this way, you will be able to have more concise information on how to increase response in operations for humanitarian organizations either for those participating in all phases or for those participating at the last phase of disaster.

5.6 Self-evaluation

The research was a great challenge to me but also a very rewarding process after the completion. The author was completely unfamiliar with the field of humanitarian logistics but topic was chosen base on the passion of using logistics to contribute to the society. In the process of theoretical framework and data collection, the author has gone through enormous learning experience prior to the beginning of this study. There is now clear understanding concerning theories pertaining to humanitarian logistics, skills, goals of humanitarian organizations as well as required specificities of different humanitarian organizations.

Also, meeting with professionals during the process of primary data collection was a big experience to me as I was able to have enhanced clarity for my research topic with some of the concept that was not clear.

The successful completion of this research work couple with what I learnt have motivated me to further my career path in the area of humanitarian logistics.

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Attachments

Attachment 1: List of abbreviations

CSCMP: Council of Supply Chain Management Professionals

ERC: Emergency Relief Coordinator

ECHO: European Civil Protection and Humanitarian Aid Operations

FAO: Food and Agricultural Organization

HCT: Humanitarian Country Team

HC: Humanitarian Coordinator

IASC: Inter-Agency Standing Committee

IFRC: International Federation of the Red Cross

NGO: Non-governmental Organization

NOHA: Network on Humanitarian Action

SCM: Supply Chain Management

UNICEF: United Nations Children Fund

UNDP: United Nations Development Programme

UNOCHA: United Nations Office for the Coordination of Humanitarian Affairs

UNISDR: United Nations Office for Disaster Risk Reduction

UNHCR: United Nations High Commissioner for Refugees

WHO: World Health Organization

WFP: World Food Programme

IQ: Investigative Question

KPI: Key Performance Indicators

Attachment 2: Kovacs interview responds data

The interview took place on Monday 06th November 2017 at Hanken Arkadia building, 1st floor. The total duration of the interview was 27 minutes and 35 seconds starting from 09:30 am and ending at 09:57, 35 am. The interview started with a brief introduction by the author explaining the purpose of the interview, the authorization of publishing the interview and key results on the university thesis website as stated by Harrell & Bradley (2009, 52).

After this briefings, the interview session continue as follows;

1. What is the name of your institution and your position?
   - ❖ Gyongyi Kovacs: Erkko professor in humanitarian logistics, Hanken School of economics. Founder and director of Humlog Institute from 2008-2014.Vice Chair for the Humlog institute.Founding editor for the journal of humanitarian logistics and supply chain management.Board member of EDSI. Author of supply chain management for humanitarians and co-author of several other publications (Hanken 2017).

2. What skills are important for employees working in humanitarian aid logistics operations?
   - ❖ We actually did alot of research for this especially for humanitarian logisticians.Interms of working in humanitarian logistics, everything that apply in commercial logistics also apply here as skills. There are certain skills that are emphasize here that is; the functional skills like inventory, warehouse, and transportation management. We often group lead management and maintainance into transportation management. Vacancies notification always have both lower and higher level skills mention so that the person are qualified for the job.

3. What training is needed for employees in humanitarian aid logistics operations?
   - ❖ Yes, humanitarian logisticians and logisticians have thesame training. The only issue is that, there are certain context specific skills to understand how to work in humanitarian logistics environment like dealing with beneficiaries. The logisticians don`t have this last phase of training. Customs regulations for humanitarian logistics are different as compare to other logistics and it might even been wave when comes to emergency custom regulations. Some of this training are done in-house depending on the need of the humanitarian organization.

4. What is the best way to speed up the availability of finance to meet urgent humanitarian need?

- ❖ There are many issues here. Some organizations are begining to have the contigency funds so that they are already collecting money before something happens. There is another endavor that is called forecast base financing especially forecasting potential disaster and its impacts to start collecting funding to arrange prepositioning before the disaster strikes like typhoon and hurricane by arranging for logistics activities. The big issue is to work with donors to make them understand that things cost alot when you have to do it ad hoc.

5. How does funding for humanitarian infrastructure affect response to humanitarian operations in disaster relief?
    - ❖ Fund for a shelter cluster will setup cluster where you have the people. I don`t think they are driving response. It depends on where you are because in Finland for example, there are shelter already on the national level that is preposition both in Finland and for sending it outside Finland. Some countries have their preportioning and the shelter cluster itself have theirs in different position around the world. Typically, how quickly shelter is made available depends on how quickly you know shelter are required. Some times government themselves put it up or there is the request for international assistance. More important is, what does that government or region itself has as means for setup for shelter. In some places, shelter is the fastest things government put in place for displace people either for people from other country or displace people within the country and only ask for assistance when they run short of theirs.

6. How a company (humanitarian organizations) financial policy and funding can affects humanitarian response in disaster operations?
    - ❖ Their financial policy I wouldn`t know because I am not there but their funding policy is very clear. When they have funding, they can respond but if they don`t have, they can not respond. That is what these organizations will say and they will start seeking pledges for funding or finance as well.

7. How does Information management and coordination tool affects response in humanitarian aid operations?
    - ❖ They have typical ERP systems with their supplier, the information tools to mornitor their staff and stock, to talk to one another. There are alot of these that can impact on response. For instance, the quicker you can order something, impact on the circle time. Across humanitarian organizations, different tools are used and it depends on the disaster especially if the disaster impact on the infrastructure like the telecome systems. And if the telecome system infrastructure is down, then your information management

tools are pen and paper because you don`t have internet, you don`t have anything to share. You have platform, you can call each other but you can not share file. In the first number of days or weeks, that's all you have (especially in situation like earthquake, war, hurricane etc where everything is down). All these are first responds phase when a disaster occur assuring there is no infrastructure. Long after the disaster occur when considering like recording refugees or mapping areas, then you can talk of tools like humanitarian ID, Sahana Eden or any other tools that you can imagine that help the operation.

8. Which information management tools are important for humanitarian aid employees to improve their work?
   ❖ Everything you think of an ICT tools can be apply in humanitarian operation if there is telecome infrastructure and these improve operations.

9. Which coordination tool is most important for humanitarian workers in a disaster operation to increase coordination?
   ❖ There are a lot of coordination tools which are not ICT tools. The cluster system is a really important coordination tool which works at different levels that does not rely on IT. This can either be on the national or at the global level of coordination.

10. Which key performance indicators (KPIs) help to increase response in humanitarian aid during disaster operations?
    ❖ There are different type of key performance indicators (KPI`s) organizations are looking at depending on the program they set up, does everything we want to do been completed, is our mission met etc. Those are important measurement for every organization but they often measure lead time, cost in relation to the donation they pull back etc. Things like specific details to appeal to coverage, donationation-to-delivery time etc can be seen in details if you check Ira Haavisto thesis.

11. How bureaucracy does affect humanitarian aid operations in disaster situation?
    ❖ It depends alot on both because there are countries that host government have disaster management organizations that are put in place to cut the bureaucracy especially for disaster. And that is what most government are trying to do, to have their disaster management organization and they have specific regulations for it before even disaster happens so that they can cut bureaucracy alot. Ofcourse not every government have it but that really impact having those kinds of emergency regulations and organization structure in place impact on how quickly you can do something. In the organiza-

tion side, especially the big ones has two sides; they deliver aid in development aid, they can do day-to-day procurement for hospitals but then they can switch into emergency mode when required and alot of bureaucracy are usually cut in their emergency mode because they are under special regulations. In a case like Finland for example, there are emergency regulations if Finland is to be in a state of emergency, those regulations will kick in and they will be significantly different from all the bureaucratic machinery of the day-to-day operations and most countries have that.

12. In your opinion, what do you recommend can improve organization humanitarian aid operation?

- ❖ There are really alot of things to improve especially it depends on the kind of disaster we are talking about. Currently, one of the big discussion going on is how much you deliver as items versus how much you deliver as cash. Cash transfer programs are now been seen as the answers to cutting the cost in the delivery process and at the same time given beneficiaries their own voices on what they need and what they want to buy. The big improvement is to understand the mixed because cash helps you when there is something to buy and it doesn`t help you if there is nothing available in the market. The other thing would actually be to look at KPI`s like what is it that we are after and what should will be measuring.

Attachment 3: Tiina interview response data

The interview took place on Friday 10th November 2017 in Helsinki at a coffee shop called "café Java". The total duration of the interview was 19 minutes and 48 seconds starting from 11:06 am and ending at 11:25, 48 am. The interview started with a brief introduction by the author explaining the purpose of the interview, the authorization of publishing the interview and key results on the university thesis website as stated by Harrell & Bradley (2009, 52).

After this briefings, the interview session continue as follows;

1. Which organization or civil society are you working for?
   - ❖ Well, I work with the Finnish Red Cross as you know
2. What is your employment status (position)?
   - ❖ I have been working permanently now for more than nine years which also give you passion when you like what you are doing.
3. What skills are important for employees working in humanitarian aid logistics operations?
   - ❖ Well, there are alots of skills involve within Red Cross organization but those that involves in humanitarian logistics will need skills like warehousing, technology, transportation, procurement and material handling. More importantly, even though they have other basic business skills, they are recommended to understand abit of health care tips especially if these are frontline employees.
4. What training is needed for employees in humanitarian aid logistics operations?
   - ❖ The training for humanitarian logisticians are similar like the commercial logisticians. Like I said, In our case even though this logisticians have been train normally, they still get in-house training to understand how the logistics, procurement and supply chain management department works especially within our context. Basic training on how to act in the field during disaster relief efforts. Example can be in the delivery process of food, water, healthcare and shelter which are basic needs for survival when disaster strikes.
5. What is the best way to speed up the availability of finance to meet urgent humanitarian need?
   - ❖ Alot matters here. We got funding from different sources like the humanitarian aid department of the European Commission, Foreign ministry, private companies and individual donors. What matters is that, we have the relief emergency fund to start responding in the case of a disaster before even

funds from this institutions or sources start getting in because it might take some time. This is what makes us different from some small humanitarian organizations and alot of other organizations have start to understand the importance of having such funds and implement thesame approach. This has a long way in impacting your activities as an organization interms of operations.

6. How does funding for humanitarian infrastructure affect response to humanitarian operations in disaster relief?

   ❖ I can`t really tell you because I don`t think we fund infrastructure. In some cases the host countries have such structures to support this. What we do is to provide temporal shelters to victims of disasters especially in situation where the local support cannot accomodate the total affected population.

7. How an organization financial policy and funding can affects humanitarian response in disaster operations?

   ❖ Like I said earlier ago, we get funds from several sources depending on the humanitarian work we want to carryout. Also as a policy, we try to make the most value for money by buying the best quality needs at the least price possible. There are also various campaigns like the Hungerday-collection we use in generating funds even before a disaster which is use for emergency response. There are also regular private donations from goodwill.

8. How does Information management and coordination tool affects response in humanitarian aid operations?

   ❖ Generally, ICT tools have make response faster today than before. Firstly, it's easier for us to coordinate within our staffs in the field and when patterns have been establish within the disaster area, then can it be easier to work with other organizations. It is common today to see coordination with different humanitarian agency even though we differ in goals or mission for fleet services, stocks etc

9. Which information management and coordination tools are important for humanitarian aid employees to improve their work?

   ❖ Here alot of tools are use for disaster response. Some of which are ICT or not with different goals. For example, the field assessment coordination team is a disaster relief tool that promote coordination of aid IFRC, the vulnerability and capacity assessment tool use for operations in determining risks and taking actions to prevent dangers resulting from them. Also, there are smart phones, different platforms, apps, crisis mapps etc which are been use by our organization and the relief staffs.

10. Which key performance indicators (KPIs) help to increase response in humanitarian aid during disaster operations?

   ❖ Its abit complex. There are alot of things that are been taken into consideration here. It depends on what has to be measured, it also depends on the strategy or goal to achieve. It might be the coverage size of the relief effort, or delivery time or cost and financial imput. All these will have a different KPI with regards to the unit involve. But to a more hollistic way like any organization, we measure cost and especially delivery time to emergency since the goal is to safe or better the lives of victims.

11. How bureaucracy does affect humanitarian aid operations in disaster situation?

   ❖ The truth is, bureaucracy affects the nature of humanitarian work but alot has been done interms of legislation by the international communities to facilitate all this. There are specialized legislation now in place which allows us quickly respond to a disaster. But there are also cases where bureaucracy really slow responds to victims. Examples especially in man-made disasters like armed conflict or war, most of the governments tend to refuse it occurence at the begining or conflicting interest makes it difficult for relief needs to arrive as quick as possible before the conditions of victims trap became deplorable.

12. In your opinion, what do you recommend can improve your organization humanitarian aid operation?

It might not be a desperate situation with us but funds still remain a big issue here. I think it's the ability of our good donors to understand how swift availability of donated funds can help affect the size of our operations and the affected population we are working with.

Figures

Figure 1: Map showing countries in Africa, the Middle East, South West Asia and South East Asia in crisis situations where Finland (dark triangle) provided humanitarian aid in 2014

Figure 2: Three dimension as a basis for theoretical development

Figure 3: They components of distribution and logistics

Figure 4: United Nations humanitarian coordination architecture

Figure 5: United Nations country team coordination and interface with government

Figure 6: United Nations humanitarian clusters

Figure 7: Humanitarian aid supply network

Figure 8: The humanitarian logistics stream

Figure 9: Humanitarian ID

Figure 10: Theoretical framework of the study

Figure 11: Research design

Figure 12: Number of respondents within each age group

Figure 13: Humanitarian organizations respondents' percentage

Figure 14: Employment status of repondents

Figure 15: Skills for humanitarian logisticians

Figure 16: Training for humanitarian logisticians

Figure 17: Means to speed up funding

Figure 18: Information management tool

Figure 19: Coordination tool

Figure 20: Indicators which help to increase response

Figure 21: Measuring performance of humanitarian organizations

Figure 22: Bureaucracy to humanitarian organizations

Figure 23: Suggestions to improve humanitarian organizations operations

Tables

Appendix

Appendice 1: Kovacs interview questions

My name is Akuri Lucien Fobi, a Bachelor degree student in International Business, at Haaga-Helia University of Applied Sciences, Finland. Your experience and knowledge in humanitarian logistics will be of great help for me to complete my Bachelors thesis "Improving efficiency and effectiveness of operations in humanitarian aid logistics". The main purpose of the research is to know how to improve response in humanitarian aid in a disaster situation (be it natural or man-made disaster). Responses will be handled confidentially and anonymously.

Thank you for taking part to this questionnaire.

1. What is the name of your institution and your position?
2. What skills are important for employees working in humanitarian aid logistics operations?
3. What training is needed for employees in humanitarian aid logistics operations?
4. What is the best way to speed up the availability of finance to meet urgent humanitarian need?
5. How does funding for humanitarian infrastructure affect response to humanitarian operations in disaster relief?
6. How a company (humanitarian organizations) financial policy and funding can affects humanitarian response in disaster operations?
7. How does Information management and coordination tool affects response in humanitarian aid operations?
8. Which information management tools are important for humanitarian aid employees to improve their work?
9. Which coordination tool is most important for humanitarian workers in a disaster operation to increase coordination?
10. Which key performance indicators (KPIs) help to increase response in humanitarian aid during disaster operations?
11. How bureaucracy does affect humanitarian aid operations in disaster situation?
12. In your opinion, what do you recommend can improve organization humanitarian aid operation?

My name is Akuri Lucien Fobi, a Bachelor degree student in International Business, at Haaga-Helia University of Applied Sciences, Finland. Your experience and knowledge in humanitarian logistics will be of great help for me to complete my Bachelors thesis "Improving efficiency and effectiveness of operations in humanitarian aid logistics". The main purpose of the research is to know how organization can improve response in humanitarian aid in a disaster situation (be it natural or man-made disaster). Responses will be handled confidentially and anonymously.

Thank you for taking part to this questionnaire.

1. Which organization or civil society are you working for?
2. What is your employment status (position)?
3. What skills are important for employees working in humanitarian aid logistics operations?
4. What training is needed for employees in humanitarian aid logistics operations?
5. What is the best way to speed up the availability of finance to meet urgent humanitarian need?
6. How does funding for humanitarian infrastructure affect response to humanitarian operations in disaster relief?
7. How an organization financial policy and funding can affects humanitarian response in disaster operations?
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12. In your opinion, what do you recommend can improve your organization humanitarian aid operation?

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Thank you for taking part to this questionnaire.

13. Which age group do you belong?
    20-34
    35-49
    50+

14. Which organization or civil society are you working (training with) for?
    - Finn Church Aid
    - Finnish Red Cross
    - UN Association of Finland
    - The Finnish NGO Foundation for Human Rights or KIOS Foundation
    - Amnesty International - Finnish Section
    - Finnish Refugee Council
    - Fida International
    - Save the Children Finland
    - World Vision Finland
    - Plan International Finland
    - Siemenpuu Foundation
    - Finnish PEN
    - The Finnish Refugee Advice Centre
    - The Finnish League for Human Rights Affairs
    - Finnish Committee for UNICEF
    - Central Union for Child Welfare
    - Empowerment of African Women Organization ry
    - Other

15. What is your employment status (position)?
    - Administrator/Manager
    - Permanent employee
    - Part time employee/Trainee

16. What skills are important for employees working in humanitarian aid logistics operations? (you can tick three)

- Procurement
- Inventory management
- Capacity building/Training
- Coordination
- Transport/shipping
- HR/Team management
- Assessment management
- Communication
- Fleet management

17. In your experience, which other skills are important to increase response of your job? (list them)

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18. What training is needed for employees in humanitarian aid logistics operations? (you can tick three)

- Need assessment
- Disaster risk reduction
- Humanitarian principle and standards
- Monitoring & evaluation
- Safety & security
- Logistics
- Project management
- People management
- Shelter / sanitation & hygiene

19. In your experience and knowledge, which other training is necessary for humanitarian employee?(please specify)

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20. What is the best way to speed up the availability of finance to meet urgent humanitarian need?

- Through Good Humanitarian Donorship Initiative
- Through joint fund raising
- Through operation researchers & operation research tools
- Others (please specify)

21. Funding for humanitarian infrastructure affects response to humanitarian operations in disaster relief.

Strongly disagree

Slightly disagree

Agree

Strongly agree

22. Company financial policy and funding affects humanitarian response in disaster operations.

1= strongly disagree

2= slightly disagree

3= agree

4=strongly agree

23. Information management and coordination tool affects response in humanitarian aid operations.

- 1= strongly disagree
- 2= slightly disagree
- 3= agree
- 4=strongly agree

24. Which information management tools are important for humanitarian employees to improve their work? (you can tick three)

- Crisis mappers
- Ushaidi
- Visibility & tracking systems
- Humanitarian open street map
- Twitter alert
- Facebook safety check
- Google crisis map
- Other

25. Which coordination tool is most important for humanitarian workers in a disaster operation to increase coordination?

- Sahana Eden
- Humanitarian ID
- 4W maps
- Others

26. Which of these key performance indicators (KPIs) helps to increase response in humanitarian aid during disaster operations? (you can tick two)

- Appeal coverage
- Duration-to-Delivery time
- Financial efficiency
- Accessement accuracy

- Other (specify)

27. Rank these key performance indicators (KPIs) based on their effect on response to disaster operations.

	1st	2nd	3rd	4th
Appeal coverage	0	0	0	0
Duration-to-Delivery time	0	0	0	0
Financial efficiency	0	0	0	0
Accessement accuracy	0	0	0	0

28. How do you measure the performance of your response to an operation?
- Using scorecard of the above metrics (KPI)
- Using tracking software for operation response
- Benchmark current response result to similar past operations
- Other (please specify)

29. What is the most important effect of bureaucracy on humanitarian aid operations in disaster situation?
- Hindrance and delay
- Increase cost
- Long registration procedure for organization
- Government intervention

30. How does the donor reporting affect on your response?
- Not at all
- Slightly
- Normal
- More time consuming

31. Base on your experience, what other ways does bureaucracy affect humanitarian operations?(please specify)

----

32. Which of the following suggestions would improve your organization operation the best? (you can tick two)
- Disaster preparedness
- Disaster management cycle
- Disaster relief management
- Humanitarian logistics management
- Humanitarian systems and collaboration
- Humanitarian supply chain management
- Other (please specify)