



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

The Global Logistics Cluster

A mechanism to coordinate humanitarian logistics

BACHELORS THESIS IN LOGISTICS

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Abstract

Disasters are occurring more frequently and are affecting more people than ever, therefore humanitarian operations are becoming more important. The location of a disaster is difficult to predict which makes the use of effective logistics services a key function when it comes to distributing supplies. Time is an important factor, and therefore preparedness is important to organize an effective and efficient response. There are many different organizations involved in the humanitarian sector and the coordination of their efforts have been a problem, bad coordination have resulted in actors competing for resources.

The Global Logistics Cluster (GLC) is a coordination mechanism that has been developed within the humanitarian sector to address the issues that the lack of coordination has led to in the past. If a cluster is well developed and managed correctly, it might have a positive impact on the immediate response after a disaster. This would indicate that the GLC can improve the emergency preparedness by reducing confusion and inappropriate use of resources in the aftermath of a disaster. The discussion on the link between the use of a logistics cluster and emergency preparedness have been given very little attention both in literature and practice.

We reach the conclusion that the GLC should be viewed as an important part of the preparedness activities. The purpose of the initiation of the GLC is clear, and as the case studies reveal that preparedness related activities are carried out, our interpretation is that more can be done in terms of preparedness. However, our research only show a small part of what can be done in the preparedness phase, and further research could reveal more important information concerning coordination and preparedness related activities. This could, in the long run, allow a more efficient and effective response and thereby save more lives.

Keywords: *Humanitarian logistics, logistics preparedness, Global Logistics Cluster (GLC).*

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Abbreviations

ETC	Electric and Telecommunications
EVD	Ebola Virus Disease
GIS	Geographic Information System
GLC	Global Logistics Cluster
GLCSC	Global Logistics Cluster Support Cell
IASC	Inter-Agency Standing Committee
IFRC	International Federation of Red Cross and Crescent Societies
LCA	Logistics Capacity Analysis
NGO	Non-Governmental Organizations
RITA	Relief Item Tracking Application
SO	Special Operation (performed by the WFP)
UN	United Nations
UNMEER	United Nations Mission for Ebola Emergency Response
UNOCHA	United Nations Office for the Coordination of humanitarian affairs
WCPT	World Confederation of Physical Therapy
WFP	World Food Programme
WHO	World Health Organization

Table of Contents

1 Introduction	1
1.1 Background: Humanitarian logistics	1
1.1.1 Different phases of humanitarian logistics	2
1.1.2 Disaster preparedness and the importance of logistics.....	3
1.1.3 Coordination as an issue in humanitarian logistics	5
1.2 Purpose	5
1.3 Research Questions	5
1.4 Scope of the study	6
1.5 Structure of the thesis	6
2 Method	7
2.1 Inductive, deductive and abductive research.....	7
2.2 Qualitative and quantitative research	7
2.3 Data collection.....	8
2.3.1 Special Operations and the GLC Annual Report	8
2.4 Analytical procedure	10
2.5 Trustworthiness and authenticity	11
3 Literature review	13
3.1 The creation of humanitarian supply chains and the challenges that arise	13
3.2 Logistics clusters and its benefits for coordination	14
3.3 The importance of preparedness	15
3.3.1 Connections between preparedness and response	16
3.3.2 The impact of a disaster	17
4 Case studies	19
4.1 The Global Logistics Cluster approach	19
4.2 Case Study Summary	20
4.3 Central African Republic	22
4.4 Democratic Republic Of Congo (DRC)	22
4.5 Western Africa	23
4.6 Gaza/Palestine	24
4.7 Iraq	25
4.8 Mali	26
4.9 Pakistan	27
4.10 Philippines	27
4.11 South Sudan.....	28
4.12 Syria	28
4.13 Yemen	29
5 Analysis	30
5.1 Challenges within the humanitarian sector	30
5.2 The importance of preparedness	31
5.3 Connections between preparedness and response	33
5.3 The impact of a disaster.....	33
6 Conclusions	35

6.1 What is logistics preparedness in the humanitarian sector?	35
6.2 How can the activities performed by the GLC be connected to the preparedness phase of humanitarian operations?	35
6.3 Contributions	36
6.3 Future research	37
7 References	38
7.1 Books and Reports	38
7.2 Articles	38
7.3 Online resources	39

Tables

Table 1 - Overview of the information retrieved for the Case Studies	10
Table 2 - Case Study Summary	21
Table 3 - The Role of the Global Logistics Cluster and preparedness related activities	32
Table 4 – The Nature of the hazards in the case studies	34

Figures

Figure 1 – The Disaster Equation	18
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1 Introduction

A disaster has been defined as “a sudden calamitous event bringing great damage, loss or destruction” by Merriam-Webster (2015). The number of disasters affecting the world each year has increased dramatically in the last 20 years, from about 200 in the mid 1990’s to around 400 in the mid 2010’s. The Sichuan earthquake in 2008 and the Haiti earthquake in 2010 are just a few of the most recent disasters that have brought the attention of the public to the issue of supplying aid to areas affected by different catastrophes (Tatham & Houghton, 2011). The Nepal earthquake in 2015 has yet again reminded the world of the vulnerability of certain areas (IFRC, 2015a). According to Aslanzadeh et al. (2009) the number of victims affected by disasters are continuously growing. They claim that due to the economic connectivity that exists between different regions of the world, a quick response is beneficial for all parties involved.

Humanitarian organizations, like The World Food Programme (WFP), have noticed the increasing demand for a prepared capacity to respond when affected communities call for aid (Pazirandeh et al. 2015). Pazirandeh (2010) explain how the most expensive part of humanitarian operations is the immediate response, and that the total amount of resources needed in the response phase can be mitigated by putting more resources into preparedness, and thereby building capacity to respond more effectively.

1.1 Background: Humanitarian logistics

The United Nations (UN, 2015) explains that when a disaster strikes, it is important that help is provided. A disaster has occurred when, as described by The International Federation of Red Cross and Red Crescent Societies (IFRC, 2015b), a hazard hits a vulnerable region and leaves the community disrupted in terms of functioning, economically and materially. The affected area could be suffering from food and water shortages, infrastructure might be damaged and communities are destroyed. The UN claim that disastrous situations requires humanitarian assistance and in order for the affected area to be reached and supported, many different organizations stand ready to provide aid.

The World Confederation for Physical Therapy (WCPT, 2014a) describes the process of dealing with every aspect of humanitarian assistance as disaster management, such as responsibilities and resources needed before, during and after a disaster. Disaster management tries to organize and manage those responsibilities and resources with the purpose to mitigate

the impact of the disaster and facilitate the work with providing, perhaps, life-saving aid. WCPT continues to explain that there are different types of disasters; for example, natural disasters such as floods and earthquakes and pandemic emergencies such as diseases.

One aspect that is part of humanitarian assistance is logistics which is claimed by WCPT (2014b) to be a key element in order for the humanitarian assistance to operate well. This type of logistics is called humanitarian logistics and is defined by IFRC (2015c) as the acquisition and delivery of supplies and support to the right place in the right time in a way that ensure the best possible value for money for all organizations and populations involved. IFRC continues by giving examples of the kind of supplies with vital importance needed in the immediate aftermath and those are food, temporary shelter and medicine. Van Wassenhove (2006) explain that 80% of the total costs associated with humanitarian operations is related to logistics activities and that it requires enough financial resources in the logistics part in order for investment in and development of necessary resources that enable sufficient logistics to work properly.

1.1.1 Different phases of humanitarian logistics

Thieken et al. (2007), have identified that humanitarian disaster relief aid consist of three specific phases; preparedness, response and recovery. These phases are discussed as stages that disaster relief operations are comprised of and Kovács and Spens (2007) sees logistics support as a crucial component during all three of the stages.

When it comes to the preparedness phase, Kovács and Spens (2007) imply that disasters are difficult to prepare for. On the other hand, the authors explain that some areas are definitely more prone to be affected. For example, some areas are in the risk zone for avalanches while other areas are closely situated to an active volcano or in an area prone to earthquakes. The authors further point out that it is important to work out plans to manage the disaster once it has stricken. The authors add that these preparation plans can and should be established by different actors such as regional government, non-governmental organizations and businesses.

During the response phase, the plans are put into action. According to WFP (2015a), activities carried out during the first days after the disaster includes logistical functions such as delivery of aid to people in need. The WFP points out that reduced response time results in more lives saved. The WFP explains that the first days of response are also used for further assessment of

the amount of food needed and for how long time the demands might remain, as well as prioritization decisions of where to send what kind of food and resources to use in the delivery. In addition, the WFP say that the answers to those questions are used to create further action plans for the continued response actions. The important issue of perhaps destroyed infrastructure in the affected region is also mentioned and this entails flexibility and adaption regarding what transportation resource to be used to distribute the supplies.

Following the response phase the WFP (2015c) claim that the recovery phase is crucial as affected regions might have experienced devastating effects of the disaster. These effects could be destroyed infrastructure, ruined communities, loss of land to grow crops and the decreased capacity of self-reliance and livelihood. IFRC (2015d) continues by explaining that it is in the immediate aftermath that rapid aid is needed, but in the long-run, one cannot assume that affected regions can take care of the devastating results of the disaster by themselves. Therefore, IFRC (2015d) explains that support in rehabilitation, development and the establishment of resilience of future disasters needs to be provided.

1.1.2 Disaster preparedness and the importance of logistics

According to Chandes and Paché (2010), the importance of logistics in humanitarian operations cannot be stressed enough. In addition, they explain that the required logistics operations are a very complex nature. Humanitarian logistics manages the life-saving supplies needed by the beneficiaries and aims to deliver the right supplies to the right place in the right time whilst ensuring good value for money. Not only will the logistics system deliver relief supplies, but also the movement of personnel and relocation of affected people to safer places.

World Health Organization (WHO, 2015a) states that preparedness is of great importance when it comes to the ability to respond to a disaster in an appropriate way. IFRC (2015e) explains that disaster preparedness is a continuous process characterized by prediction and prevention of disasters. Jahre and Van Wassenhove (2014) explains that the purpose of preparedness activities is to enable organizations and local governments to reduce the required response time to reach beneficiaries with necessary relief items. The authors adds that preparedness seeks to facilitate effective coordination during the actual response phase. Further IFRC (2015f) and IFRC (2015g) describe some activities that are carried out, two of them are contingency planning and training of staff. Contingency planning is a management tool for shortening response times and is done by making decisions in advance on matters such as management on

human and financial resources and coordination procedures. The purpose of training staff is that the personnel sent to disaster sites will be well prepared and therefore have the knowledge and capability to respond.

WHO (2015b) explain additional preparedness activities, which involves early warning systems which will provide timely surveillance that collects and analyze information regarding for example diseases. The purpose is to create a movement towards establishing public health interventions with the aim to decrease the level of diseases.

IFRC (2015h) states that preparedness is a helpful tool for the local communities, which are the first ones to start responding to disasters. By providing them with this kind of service, the communities can reduce their vulnerability and increase capacity to reduce the impact of disasters.

An important part of disaster preparedness is logistics preparedness and this is pointed out by IFRC (2015i) who explain that logistics preparedness is a crucial component when reducing the impacts of a disaster. Logistics preparedness include life-saving activities such as transport planning and prioritization, receptions and distribution of emergency items. Further, IFRC sheds light on the pre-positioning of life-saving supplies as another important task which is carried out in order to meet initial need in the immediate aftermath of a disaster.

Other logistics preparedness activities are presented by United Nations Development Programme (1993), such as analyzing the level of vulnerability of the infrastructure. That includes a thorough investigation of for example available transport routes and possible bottlenecks. Further, constantly reviewing the available strategic resources for logistics support is important. This is due to the fact that every country has its own conditions for, for example, the possibility to pre-position relief items and the availability of local support of transportations resources.

Jahre and Van Wassenhove (2014) adds to the previous section that the logistics preparedness activities carried out by humanitarian organizations have not been covered enough in academic literature with the exception of fleet management and prepositioning of relief items. The authors also claim that there is a lack of consensus regarding definitions on preparedness among the organizations involved in humanitarian operations.

1.1.3 Coordination as an issue in humanitarian logistics

UN (2013) explains that the request for humanitarian assistance is growing due to a derived demand from the increasing number of disasters and at the same time, the operational environment becomes more complex. The complexity is a result of for example numerous and diverse aid organizations. UN (2013) claims that over the coming years, finding a way to take full advantage of every part of humanitarian aid is essential. The United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA, 2015a) point out the importance of coordination as a crucial way for improving the effectiveness of humanitarian response since coordination can improve the predictability, accountability and partnership concerning the operations.

The authors provide a possible solution to overcome coordination issues and that is to use a cluster approach. UNOCHA (2015b) claims that a cluster approach is a good way to ensure that gaps are filled and overlapping assistance is reduced whilst being driven by needs instead of capacity and strive for collective results in the assistance. The GLC has been created as a mechanism to coordinate humanitarian operations and avoid duplicated efforts where possible (GLC, 2015a).

1.2 Purpose

In this thesis, we want to map how the GLC is used in the humanitarian sector and how the cluster might be connected to logistics preparedness, in order for the academic world to gain more knowledge regarding the concept of a logistic cluster and preparedness.

1.3 Research Questions

In order to reach our purpose we aim to find the answer to the following questions. It is important to identify what logistics preparedness is since it is an expression that is not very well explained in literature and a concept that might include different actions in different contexts. The GLC's actions will represent the actions in practice, so their activities are of vital importance to fulfill our purpose and answer our last research question.

- What is logistics preparedness in the humanitarian sector?
- How can the activities performed by the GLC be connected to the preparedness phase of humanitarian operations?

1.4 Scope of the study

In order to tie the study together, the field of humanitarian logistics will be researched, as well as the concept of preparedness and the GLC and its operations. Information will be retrieved from secondary sources (both from humanitarian organizations and scientific sources) due lack of access to primary sources.

The information will be retrieved from the WFP and the GLC. We are aware of that this makes the information biased, but it is still expected to help answer the research questions. Even though the data might be subjective, it can still increase our knowledge of how the GLC work with humanitarian operations.

The activities performed by the GLC in different operations will be viewed from a general perspective and not focus certain type of disaster, this to ensure that we can see how the GLC works regardless of the type of disaster.

Humanitarian operations are closely connected to the availability of funds but in this thesis, the cost perspectives of each case won't be covered due to the fact that it is not relevant to answer our research questions. However, the effectiveness and efficiency of the operations are sometimes mentioned in monetary terms as the goal of humanitarian logistics is to utilize financial resources as effective as possible. How the GLC's involvement affects beneficiaries will not be studied.

1.5 Structure of the thesis

We will begin this thesis by introducing our method in chapter two, this is relevant to us because it describes how we have gathered the data and retrieved the theoretical framework used to answer our research questions. Included in the method is an explanation of the type of study we have conducted, how we have collected our data and information on how we have analyzed it as well as a credibility discussion. We will move on to the literature study in chapter three and then introduce case studies that we have conducted in chapter four. Chapter five consist of our analysis which will guide you through our process to form our conclusions and answer our research questions and pointers to future research in chapter six.

2 Method

This chapter will describe what kind of research that has been conducted, the type of data that has been used and how the study was conducted. The chapter also includes a credibility discussion as well as a description of how the analysis was conducted.

2.1 Inductive, deductive and abductive research

There are three common approaches that define the research approach towards creating theories and Arbnor & Bjerke (1997) explain the first and second approach as the inductive and deductive approach. When using the inductive approach, the researcher begins with an observation of something and from that, theory of the observed object or situation is created. The deductive approach begins with analyzing existing written theory and Patel & Davidsson (2003) explain that existing theory can reduce the risk of including own perceptions and opinions regarding the theory. However, different opinions exist on the very same problem and if the researcher becomes too caught up on a certain idea, a broader and different view of the topic might be prevented. The authors continue by adding that the lack of a broader view can limit the creation of new knowledge based on existing theory. Alvesson and Sköldbberg (2008) describe the third approach, the abductive, as a way to use concepts from both the inductive and deductive. It is used to allow modification of the study throughout the research as further knowledge is gained. The abductive approach was deemed the most appropriate and therefore used in this study since both the inductive and deductive both left out important parts and did not allow us to change the perspective of the study as more knowledge was gained.

2.2 Qualitative and quantitative research

When choosing between a qualitative or quantitative approach, one should look into the nature of the study that is being made and let the study decide. According to Björklund and Paulsson (2003) a qualitative study aims to gain a deep understanding of a specific topic, whereas a quantitative study seek numerical descriptions and analysis. However, the authors also point out that the task of a numerical result highlights an important drawback with the quantitative study, which is that not everything can be described in numbers. In our study, describing and analyzing the topic in numbers would not result in any useful knowledge which is why the qualitative approach was chosen.

2.3 Data collection

Ghuri and Grønhaug (2005) describe the concept of primary data and explains it has not been modified or worked with by any intermediaries but comes directly from the researcher. It is collected using methods such as interviews and surveys. One identified benefit of primary data is that the data stemming from for example an interview is perfectly adapted to the specific research question (given that the questions are formulated well). Drawbacks concerning for example time requirement and the possibility of unreliable interviewees are important to take into account. Bryman and Bell (2013) explain that secondary data is the kind of data that is not collected by the researcher and can therefore be modified and worked with several times. This may result in less reliable data since it becomes more and more questionable the further away from the initial source it is. However, Bryman and Bell explain that it is less time consuming and cheaper to collect data from secondary sources.

Our study was comprised of secondary data only, though the initial goal was to speak to some humanitarian organization representatives regarding information on what the GLC is and how it works in real life operations. This in order to get experience based information and the possibility to ask follow-up questions. However, that kind of source for information was not possible to reach, instead articles and reports were collected from actors within the humanitarian community as well as scientific data.

The articles were collected by searching in scientific databases for topics discussing humanitarian logistics, the GLC and preparedness. The purpose was to find information that could bring a broader understanding of the topic in order to perform an analysis discussion.

2.3.1 Special Operations and the GLC Annual Report

WFP (2015e) classify the operations that they perform in the field of humanitarian aid into four different categories. WFP (2015d) classify their other operations as; Emergency Operations, which focuses on delivering assistance in the immediate aftermath of a disaster, Relief and Recovery Operations focuses on activities taking place after the response phase and the improvement of food security within communities are carried out by the third operation type, the Development Operations. Their Special Operations (SO) are characterized by logistics activities and aim to enhance the transportation of aid by overcoming operational bottlenecks. The Special Operations consist of both infrastructural and logistics work and after searching for Special Operations in WFP's database for archived Special Operations, we found that the GLC

was activated in 13 of them in 2014. There were 81 SO's available, but not all of them fitted our criteria of having the GLC in 2014 and therefore they were not included in our study. If the GLC is activated, this means that it is requested to provide support to the humanitarian operations in the field.

Reports explaining how the GLC was to work during actual operations were available and collected from the official website of the WFP and the GLC (these operations will be the base for our Case studies in the thesis). The WFP is the leader of the GLC and therefore found as a reliable source. Even though there is a risk that data collected from their website could be subjective, we chose to use it since it is expected to help us fulfill our purpose.

The Annual Report from the GLC in 2014 was located on their website and it contained information regarding how the clusters had been activated in 13 operations in the world. The specific operations found in the annual report could also be found on the official website of WFP but in a more extended and informative way. In the Annual Report from the GLC, 11 cases were presented and described. The information to be found in each of the 11 cases concerned the situation that initiated the operation in the first place and the work done by the GLC, we decided to study those 11 operations further. We chose the year of 2014 since it is the most recent calendar year available. To enable the readers to go back and look at the same information that we have, we chose to gather useful information in Table 1. The type of information retrieved for all the 11 cases is the situation in the area to 1) enhance our knowledge and get background information on the need for humanitarian aid as well as 2) gathering information in the activities performed by the GLC and their objectives. The data for each case is retrieved from two sources, general information is retrieved from the Annual Report from the GLC and more specific information on each case is retrieved from the archived Special Operations (numbered as SOXXXXXX) connected to the case on the website of the WFP.

Table 1– Overview of the information retrieved for the Case Studies			
Nr	Operation	Source of information	Amount of information
1	The Central African Republic	Annual Report	2 pages
		SO200605	8 pages
2	The Democratic Republic of Congo	Annual Report	2 pages
		SO200465	- pages
		SO200747	5 pages
3	Western Africa – Ghana, Guinea, Sierra Leone and Liberia	Annual Report	2 pages
		SO200773	9 pages
4	Gaza/Palestine	Annual Report	2 pages
		SO200757	7 pages
5	Iraq	Annual Report	2 pages
		SO200746	5 pages
6	Mali	Annual Report	2 pages
		SO200534	13 pages
7	Pakistan	Annual Report	2 pages
		SO200741	4 pages
8	Philippines	Annual Report	2 pages
		SO200595	8 pages
9	South Sudan	Annual Report	2 pages
		SO200361	6 pages
10	Syria Response	Annual Report	2 pages
		SO200788	8 pages
11	Yemen	Annual Report	2 pages
		SO200798	6 pages

2.4 Analytical procedure

The analysis is a qualitative comparative analysis (Schutt, 2015) where data was collected and then categorized into the role of the GLC and activities that are carried out by them. This with the purpose to compare how activities carried out in the 11 different cases could indicate the connections to the preparedness phase. The extraction of both preparedness related activities and other factors, such as the nature of the hazards, were categorized in order to gain understanding of how the GLC is working in terms of preparedness. The findings were later used to form our conclusions.

2.5 Trustworthiness and authenticity

Bryman and Bell (2013) explains the most common ways to gain knowledge of the quality of a quantitative study, which are reliability and validity. However, the authors add that those two ways are interpreted as less suitable for qualitative studies and instead present alternative concepts, which are trustworthiness and authenticity. The reason why for example validity is difficult to apply to qualitative studies is because it concerns quantitative measurements. A qualitative study does not include measurements of such form, which is why the application of validity has to be reconsidered.

Bryman and Bell (2013) continues to explain that authenticity comprises for example that the study should provide an authentic point of view, and in our case the study should reflect the research questions so that the most authentic point of view is shown. With the example of interviewing, CEO's perspective of a company's situation might be different to an employee who is not a CEO. Depending on who the interview is based on, there is a possibility that the outcome is not truly authentic. In our study, by including both actor's and scientific sources, no perspective is left out and the total picture of the study becomes more authentic. According to Bryman and Bell (2013), trustworthiness can be divided into four categories (dependability, transferability, credibility and confirmability) that represent different parts of the umbrella term validity used for quantitative studies.

According to Bryman and Bell (2013), dependability is equivalent to reliability. This criterion concerns the importance of that every part of the study is done thoroughly so that the study can be audited, by for example colleagues, in terms of quality. The audit includes the determination of whether the conclusion is justifiable. Despite the importance of dependability, the process is often put aside due to its time-consuming nature and the big amount of data to be audited. As for our study we constantly and carefully give room for reviewing by presenting references to every part of the study as well as participating in seminars where opponents present their feedback in the form of opinions and questions.

Bryman and Bell (2013) explain that transferability is about whether the result from a study can be transferred to other environments. However, it is difficult to generalize a result due to changing environments and that the study objective is just a sample. Instead, the authors of a study should ensure that it is comprised of as detailed information as possible, which will help the readers to make their own opinion concerning the applicability to other environments and

cases. As for our study, facts from both scientific sources, such as articles from researchers, and from humanitarian actors' point of view, are presented. Hence, two perspectives are reflected to give a broader view of available knowledge. By identifying and using the source that has in turn been used by others, the least modified and therefore the most correct source of information creates the foundation of our study.

Bryman and Bell (2013) explain that credibility concerns the way that a study is conducted. If it is conducted according to existing rules, the credibility will increase. If there were several studies to choose between, the one with the highest level of credibility is the one that will be used to explain reality. In the case of a conducted interview, the participants could have confirmed the credibility level by taking part the result to ensure that the correct interpretation of reality has been made. In our study, the result can be shared among the humanitarian community and in that way receive feedback regarding the level of credibility.

Confirmability concerns objectivity and Bryman and Bell (2013) claims that a study should be able to prove and confirm that subjective perspectives do not shape the result. It is therefore important to conduct a study with an objective point of view which means that including own opinions and values may lead to a misleading outcome of the study.

Our aim was to gain knowledge and understanding of an unknown area of study. By including both a scientific and actors' point of view to our own non-existing pre-knowledge, we have remained objective. Using articles published by our supervisor has not affected our objectivity since the published work can be seen as any other source of information available on the topic.

3 Literature review

In this chapter we will present published research concerning humanitarian logistics, logistics clusters and logistics preparedness.

3.1 The creation of humanitarian supply chains and the challenges that arise

According to Aslanzadeh et al. (2009) the humanitarian sector deals with highly uncertain demand patterns as well as an expected lead-time of zero. The uncertainty leads to the need for very responsive supply chains and demanding pull-strategies which might not make them as effective and efficient as needed. Humanitarian supply chains are faced with further difficulties, and Aslanzadeh et al. explain that the infrastructure needed to supply aid may be damaged or non-existing in the affected areas and many parallel supply chains may need to operate simultaneously. Optimization of the supply chains may not be possible due to lack of information and coordination between participants.

According to Kovács and Spens (2007) the immediate need for relief in areas affected by disasters causes humanitarian supply chains to be designed quickly using limited information concerning the circumstances of the disaster. Many different actors are to be organized and coordinated in relation to each other in order to avoid duplicate aid contribution and more easily identify what resources are available and which suppliers are present. The authors continue to explain that the assessments of the demand for aid, such as; the nature of the demand, time needed and location are based on very little information. Limited information regarding the potential to satisfy the demand is available and it is difficult to know if there is a reasonable possibility to satisfy all the demands that arises or not. The authors conclude that the main issue in the response phase is coordination of supply and unpredictable demand.

Aslanzadeh et al. (2009) continues on the notion of coordination and its challenges. They explain that the absence of coordination and a central command can lead to resources being wasted in some areas, scarce in others and duplicated efforts when different actors focus on the same relief efforts. Jahre and Jensen (2010) adds that this situation is likely to happen since many independent and sometimes area-specialized organizations are working on the same event. If many actors offer relief work in the same area at the same time, Aslanzadeh et al. (2009) concludes that they are going to compete for basic resources, such as trucks or shelter.

Additional issues brought forward by Aslanzadeh et al. are the lack of information systems that hinders communication and information sharing among the actors involved.

According to Overstreet et al. (2011) humanitarian logistics have long been difficult to coordinate, this due to six complexities that they bring forward. Firstly, when working with humanitarian logistics you face a lot of unknown factors that you cannot control, the most crucial of these being the availability and usability of equipment and infrastructure. For example, one could never know how floods affects bridges or to what extent the affected region has resources such as trucks available for aid distribution. Secondly, time is a much more prominent factor within the humanitarian context compared to commercial logistics. A delay that causes supplies to arrive late could mean the difference between life and death for those affected by a disaster.

Overstreet et al. (2011) continues to describe the third issue, the availability of trained logisticians and high turnover on qualified personnel. The reason can be attributed to for example poorly defined career paths. The fourth complexity is the involvement of the media, which has a great impact on donors' willingness to contribute. If the media covers a disaster, donors are more willing to cooperate but they lose interest as soon as the media does, and are rarely aware of the uncovered disasters, and therefore cannot donate.

The authors continue to explain the fifth problem, the low sophistication level of the current logistics information system that should contain data regarding which suppliers and transportation providers are effective and which are not. The system should also keep track of the cost and timeliness of responses as well as the appropriateness of donated goods, this would also allow the management of information to be as effective as possible. The last of the complexities is interference and corruption that pose a constant threat to the coordination of the already uncertain and sometimes hostile environment that humanitarian logistics systems operate in.

3.2 Logistics clusters and its benefits for coordination

Vahid-Moosavi and Noorizadegan (2009) explain how clusters are built and what benefits are to be gained by pointing out that since clusters consist of many different actors, such as enterprises and government institutions, and that there is a possibility to enhance and reinforce each other. The authors continue to describe how clusters promote “the intangible assets of synergy, trust and social capital” (Vahid-Moosavi and Noorizadegan, 2009, p. 160). The actors

within a cluster are inter-related and act as each other's partners and suppliers and rely on cooperation and collaboration to break barriers between public and private sectors. The authors conclude that a cluster enable all actors opportunities to access information faster and obtain specialized inputs to work in a more cost-effective way.

Jahre and Jensen (2010) discuss cluster-based systems as a suitable coordination mechanism and they present several areas that could be improved using a cluster-based system within the humanitarian sector. The first improvement would be to approach emergencies using a collective global capacity and the second would be the ability to predict the leadership needed on both a global and local level. The third improvement is a strong partnership between the humanitarian actors and the local government. Next, the cluster should create more accountability both towards the response and the beneficiaries. Lastly, the coordination on strategic-field level and how to prioritize is another area that can be improved using a cluster system.

According to Jahre and Jensen (2010), clusters will be created globally but mobilized locally in accordance with the specific circumstances in each disaster event. The leader within the humanitarian sector, the WFP, needs to ensure that capacities are available both centrally and locally. These capabilities are for example training of personnel and pre-positioning of necessities such as food. The authors point out the responsibility of the leader as the last provider of a certain aid if no one else in the cluster can provide it. That statement claims WFP as the last provider of logistics support in case no other organization can provide sufficient logistics support.

3.3 The importance of preparedness

As mentioned above, WHO (2015a) explains that disaster preparedness is important due to its qualification as a support towards facilitated response phase activities. Moeiny and Mokhlesi (2011) adds that even though it is difficult to prepare completely before how a certain event, there are still a huge gain in terms of effectiveness compared to a case that lacks preparedness activities. In addition, they present that contingency planning and response procedures are part of the preparedness activities. In addition, the authors explain that preparedness plans are made both by local governments and humanitarian organizations, which usually are coordinated with each other.

Kunz et al. (2014) explain common preparedness activities and the activities are categorized into several groups which are inventory, infrastructure, human resources, knowledge management, process management, resource and community. Inventory related activities are the pre-positioning of relief items in areas that are exposed to disaster risks. Activities carried out to prepare the infrastructure is to build infrastructure that is either powerful enough to withstand a disaster or specialized such as hospitals or power plants that is needed in the event of disaster. The hiring and training of staff with the right skills on the topic is included in the humanitarian resource category. It is also important to gain knowledge in many forms in order to carry out a successful operation which is included in the knowledge management category, for example, learning from previous operations and collect information on a disaster beforehand using early warning systems. The process management category involves the use for example local support such as suppliers of food or logistics providers during the response phase, therefore it is important to pre-negotiate on agreements and pre-determining arrangements with partner organizations. Under the category of resources, the preparation of financial resources is necessary for a better response. The community category involves educating societies on how to make their own preparation plans, negotiating on partnership with other partners such as local governments and other humanitarian organizations on frameworks and operation plans, negotiating with governments on customs arrangements. Overstreet et al. (2011) claims that preparedness should be considered a steady state action and not an action to activate when the disaster has already struck.

IFRC (2015i) claims that logistics preparedness is a crucial component to disaster preparedness which has been pointed out above. Kapucu et al. (2007) confirms the importance of logistics preparedness by viewing logistics and for example the important activity of pre-positioning relief items as an obvious part of disaster preparedness. The reason is that an operable logistics plan is required and crucial for the emergency response to be satisfying. Despite that, the authors did not find any literature supporting that important link between certain logistics activities and preparedness.

3.3.1 Connections between preparedness and response

Kovács and Spens (2007) argues that it is when the actual disaster strikes, the prepared plans are taken into action. The authors also claim that some challenges are bound to occur during the response phase despite a high preparedness level and those challenges are presented below.

The first challenge identified by Kovács and Spens (2007) in the response phase is called demand management and it clarifies the importance of understanding that the demand can be estimated both in terms of the amount of people in need of aid, but it can also in terms of what kind of aid is required. For example, you cannot expect every population to demand the same type of aid due to different preferences of food around the world. Language barriers and practical relief destinations such as availability of hospitals are other challenges.

The second challenge explained by Kovács and Spens (2007) is supply management and includes several issues. The humanitarian sector receives donations from all over the world and the importance of them varies. The reason is that some donations are more crucial than others. The less important donations blocks important delivery routes and hubs for instance in warehouses and at airports. For example, donating a computer creates a derived demand for electricity. Also, aid that include manuals or other goods with different standard systems has prompted for the creation of standardized systems, for example color coding regarding such items. Local suppliers play an important role during an operation and when possible, procurement from local suppliers is preferred, which contributes to a decreased need for transportation of goods and less resources are needed in order to assess what kind of food is needed in a particular area.

The third challenge presented by Kovács and Spens (2007) is called fulfillment management. Under this type of challenge, the identification of existing roads, airports, ports and availability of vehicles is important. However, the transportation itself is not the biggest issue, instead the possibility of insufficient fuel availability can hinder the transportation of goods. There is a possibility that the end recipient lack appropriate tools and equipment to handle goods, this situation requires that only small packages are delivered, in order for the aid to be of use. The issues regarding infrastructure makes it even more difficult to maintain a good standard.

3.3.2 The impact of a disaster

Another important part to take into account when preparing for a disaster concerns a phenomenon henceforth referred to as the disaster equation. The IFRC (2015b) shows that the impact of a disaster can be viewed as an equation.

Figure 1 – The Disaster Equation

$$\frac{VULNERABILITY + HAZARD}{CAPACITY} = IMPACT OF A DISASTER$$

(IFRC, 2015b)

The size of hazardous events happening to more or less vulnerable communities divided by the capacity to manage the aftermath, and the result will decide the final impact of a disaster (IFRC, 2015b). The smaller the hazard and vulnerability, and the greater capacity, the less the impact will be.

Hazards are categorized as natural or man-made, as explained by IFRC (2015j). Natural hazards can be biological (for example diseases) or geological (for example earthquakes). Man-made are for example displaced populations or industrial accidents. Further, IFRC (2015k) defines a vulnerable region as a region with less capability to foresee, handle and recover from hazards. The capacity is explained by IFRC (2015l) as the ability to reduce risks and includes several activities, most of them falling under the term preparedness. Examples of preparedness activities are early warning systems and contingency planning mentioned above and the support of livelihood. The support of livelihood consists of several projects that support individuals in their own personal risk reduction activities. Individual risk reduction may consist of education on how to improve nutritious home gardening to use in the event of emergency.

Pazirandeh (2010) supports the connections that the IFRC makes in the disaster equation by explaining how the perception of the risk connected to a disaster depends on both the vulnerability of the population affected and the severity of the hazard, as well as the response community's capacity to respond. Pazirandeh (2010) conclude that higher preparedness will therefore reduce the risk associated with a disaster.

4 Case studies

This chapter will introduce the cases that we have studied. Firstly, an introduction to the GLC will be presented and then a brief summary of the main events of the 11 operations mentioned in Chapter 2 will be presented in Figure 3. Following the summary is a more detailed description of the 11 Special Operations performed by the GLC and the sources for the information in those descriptions are presented in Table 1.

4.1 The Global Logistics Cluster approach

The foundation for the current humanitarian system for coordination was set by the United Nations General Assembly resolution 46/182 in December 1991 (UNOCHA, 2015b). But many international disasters are very unpredictable, and the international humanitarian community (consisting of both UN agencies, international organizations and non-governmental organizations) have since identified many weaknesses and gaps in past operations (GLC, 2015a). Within the UN, the humanitarian and disaster-relief efforts are supervised by UNOCHA who provide all actors with information on emergencies around the world and mobilize funding for specific situations by launching international requests for financial help (UN, 2015).

Due to the earlier mentioned issues within the global humanitarian community, a reform was presented through UNOCHA in 2005 to address the issues identified as well as it introduced new features to improve partnership, capacity, leadership, accountability and predictability (UNOCHA, 2015b). Its purpose was clear, the partnership between the actors in the humanitarian sector needed improvement to make the international response to emergencies better. The reform contained three pillars, the first being development of clusters at a global level and local level, the second pillar was to strengthen the role of the Humanitarian Coordinator at a field level and the third pillar intended to modify the key aspects of the funding mechanisms. (GLC, 2015a)

The Inter-Agency Standing Committee (IASC) is a key player when it comes to coordinate the assistance as they bring all the main humanitarian agencies together, whether they are a part of the UN system or not. The IASC develop policies, decide how the responsibilities among the organizations shall be divided and work towards making the process of humanitarian aid as effective and efficient as it possibly can be. This cluster approach when it comes to the division of responsibilities among the humanitarian organizations has revolutionized the field of humanitarian and disaster-relief aid. (UN, 2015)

The GLC is a coordination mechanism created by the IASC with the purpose of coordinating both information and logistics services to ensure that the logistics response is both as efficient and effective as possible when dealing with a humanitarian emergency mission. Each cluster has a specific operational zone. To achieve the goal of being as efficient as possible, gaps within the existing logistics capacity are identified and filled and the GLC try to meet the need of logistics coordination where it is lacking. Other activities carried out by the GLC are the support of decision-making and improvement and broaden of knowledge about humanitarian logistics amongst the partner organizations as well as system-wide preparedness in a cooperation with local governments. According to the GLC (2015a), other logistics activities concerns information collecting and distribution. Further, GLC (2015b) explains that The Logistics Capacity Assessment (LCA) is an online platform hosted by the GLC which organize and distribute logistics information to the global humanitarian community, in order to facilitate inter-agency logistics coordination.

The WFP has great expertise and an extensive capacity when it comes to logistic emergency response, and has therefore accepted the role as the lead agency of the GLC (GLC, 2015a). Other organizations rely on WFP's capacities to reach affected areas (WFP 2015e), and in the case studies it is clear that the WFP approves the activation of the GLC to support all humanitarian actors as they try to reach affected populations. The activities performed by the GLC are driven by the Global Logistics Cluster Support Cell (GLCSC) based in Rome, who supports the GLC with trained logisticians and knowledge.

4.2 Case Study Summary

Table 2 will introduce the cases by explaining the situation that have caused the humanitarian community to provide aid in the areas. The status of the operation will explain if the GLC was active in the beginning or end of the year, this to provide the reader with some perspective on the scale of the operation.

Nr	Area	Type of disaster	Status; Beginning of 2014	Status; End of 2014
1	Central African Republic	Occupation by rebel groups, internally displaced persons, volatile and insecure	Active	Active
2	The democratic Republic of Congo (DRC)	Most complex in the world – internally displaced persons, instability and violence	Inactive	Active
3	West Africa - Ghana, Guinea, Sierra Leone and Liberia	Ebola Virus Disease (EVD) outbreak	Inactive	Active
4	Gaza/Palestine	War. Bombardment from air, land and sea, internally displaced persons	Inactive	Active
5	Iraq	Occupations by rebel groups, internally displaced persons, deteriorating security situation	Active	Active
6	Mali	Population displacement	Active	Inactive
7	Pakistan	Population displacement	Inactive	Active
8	Phillipines	Super Typhoon Haiyan. Damaged infrastructure, displaces persons	Active	Active
9	South Sudan	Separation from North Sudan	Active	Active
10	Syria	Syrian Civil War Forth year of conflict	Active	Active
11	Yemen	Insecurity, armed conflicts and violence, large number of displaced persons	Inactive	Active

4.3 Central African Republic

Central African Republic has dealt with a coup that started on March 24, 2013. The humanitarian situation has, since then, deteriorated in terms of escalating and unpredictable violence resulting in fleeing population despite the government's effort to restore peace. This has led to more than 400.000 refugees in neighboring countries. The assessment of the situation has stated that there is an increased need for humanitarian aid for those affected. The already insufficient infrastructure is being even more damaged by the heavy seasonal rain which makes the humanitarian situation even worse. The cluster was activated in Bangui in 2013 in order to fill identified gaps such as to support with services and to create a greater coordination mechanism in order to facilitate the delivery of humanitarian aid, for example the consolidation and facilitation of organization of vehicles amongst the operating international NGO's and UN agencies.

The objectives of the SO are to increase the transport capacity to allow a more reliable access to the affected population and to repair damaged warehouses to ensure that the supply-chain infrastructure is intact and repair bridges that prevent access to the areas affected. The operation will also support the wider humanitarian community through logistic information management and coordination. Reliable Electric Telecommunications (ETC) and networks for data to the humanitarian community will also be prioritized. A coordinator for logistics efforts will through inter-organizational meetings with both agencies and government representatives' help optimize the use of resources and prevent duplicated efforts while identifying gaps.

The benefits of the operation are predicted to include a more reliable and efficient as well as effective humanitarian response by increased capacity both when it comes to storage and transportation, as well as the repair of the bridges that will be beneficial for both the humanitarian sector and the beneficiaries. UNOCHA are predicted to be able to negotiate with the Seleka representatives and the Government to agree on safe passage and humanitarian corridors, this to mitigate the security risks that are unavoidable in the area. To be able to reach supplies during rain-season pre-positioning of supplies are suggested.

4.4 Democratic Republic Of Congo (DRC)

One of the most complex humanitarian crises have evolved in the country due to armed conflicts and a widespread insecurity. Ethnic tensions and land-access issues have since the beginning of 2012 led to an escalating level of violence in the northern part of the country and the

displacement of almost 3 million people. Access to most of the provinces is limited due to the poor condition of very critical infrastructure. The GLC was activated in 2006 but has continuously increased its capacity to improve the possibility to tackle persistent logistic challenges when the need for humanitarian assistance increases.

The objectives of the SO are to ensure that the logistics response in the location is coordinated to allow the supplies to reach the vulnerable communities, and by providing relevant logistics information allowing the response to be as efficient and timely as possible. The operation also aims to resolve logistics bottlenecks that have been identified. The operation is described to have two main components, information management and GLC coordination. Information management includes activities such as updates of the Logistics Capacity Assessment (LCA) that all cluster members may access, coordination meetings and GIS information to have updated data regarding the usability of infrastructure. The GLC coordination includes engagement with the most valuable humanitarian partners through inter-cluster meetings to enhance coordination and use of the Relief Items Tracking Application (RITA) as a tool for reporting and tracking.

The operation will, with the help of the GLC's expertise, allow the logistics response to be more integrated and coordinated and thereby allowing bottlenecks to be resolved and the logistics gaps to be filled.

4.5 Western Africa

The outbreak of the Ebola Virus Disease (EVD) across Sierra Leone, Liberia and Guinea have presented operational and logistical challenges for the humanitarian response in the area. Direct coordination, logistical reinforcement and support was needed to reach the most vulnerable communities that was affected by the outbreak and requests for coordination and logistics services was made to support the operations in the area. The need for logistics support between agencies was assessed and the United Nations Mission for Ebola Emergency Response (UNMEER) was assigned the task of coordinating and planning, as well as the task of directing efforts of both national governments, UN agencies and humanitarian actors to where they were needed. The GLC offers UNMEER support when it comes to coordination, logistics services and information management.

The objectives of the SO are to support UNMEER with required infrastructural, logistics and supply chain capabilities and use the GLC's knowledge of logistics to make the humanitarian

response more effective and efficient to stop the spread of the disease. Access to personnel shall be provided and support for the preparedness and response to related hazards around the world. Coordination hubs were created and meetings held, over 65 humanitarian actors were coordinated by the GLC by the end of 2014. Air coordination was also established, this to enable flights to carry relief cargo to the affected areas. When it comes to essential information management, such as maps or situation updates, all updates were published online.

The close collaboration with UNMEER as well as government partners and the humanitarian community is predicted to strengthen partnerships and thereby enhance future capabilities to respond to crises. The risks of demand that exceeds forecasts will be mitigated through possible up-scaling of staff and access to storage facilities and pre-positioned goods. Customs delays will be lessened by early customs clearance and discussions with involved authorities.

If goods flow corridors are closed due to political developments or insecurity, alternative corridors will be supported with the help of partners, both local and in the humanitarian community. Contingency planning on Ebola hazard contexts are established in order to enhance further preparedness and response if needed.

4.6 Gaza/Palestine

The escalation of violence in Gaza in July of 2014 meant that a humanitarian emergency was declared. Almost 500,000 Palestinians that lived in Gaza were displaced and an urgent need for humanitarian space to give room for humanitarian activities in a very dangerous environment. The GLC was activated in the end of July and was to coordinate as well as ensure the delivery of humanitarian assistance. Only one entry point, The Kerem Shalom Crossing, was open and it was operated under heavy security and the GLC worked to address the constraints that hindered the life-saving cargo from reaching the affected population.

The objectives of the SO are to enhance the efficiency, timeliness and predictability of the emergency response by coordinating the access to the affected area and providing common transportation and storage to the humanitarian community.

Many logistics gaps were identified, and to fill them the GLC made free transportation, storage, coordination and information management available to the humanitarian community. The information was consolidated by the GLC and shared with the relevant authorities in an attempt to find solutions to delays or to ease bottlenecks. The transportation services assisted 53

organizations by implementing five staging areas for consolidation and preparation of cargo prior to transportation as well as providing storage for 9 organizations. The Relief Item Tracking Application (RITA) tool was implemented.

The GLC possess the ability to provide support immediately and therefore the project will make the response more effective and efficient. The risk of closed corridors due to political development or insecurity will be mitigated by close coordination with relevant authorities and actors to resolve issues or find other alternative corridors. In order to make customs issues easier, the activities regarding customs will start early. The risk of demand that is greater than the forecasts will be mitigated through available staffing with an ability to scale-up their efforts but also through pre-positioned equipment.

4.7 Iraq

In the middle of 2014, armed opposition groups, including members of the former regime and the Islamic State took control over multiple provinces in northern Iraq and they were advancing toward Baghdad. The conflict caused about 1.5 million people to be displaced and in immediate need of humanitarian assistance, but the exact numbers were deemed difficult to count, and additional displacement was expected as the conflict continued. Humanitarian actors were scaling up activities to support additional internally displaced persons. As the region already hosted 250,000 Syrian refugees, the logistic capacities were reaching their limits. The security situation made it difficult to collect information regarding the condition of the infrastructure. The basic needs of the affected population were difficult to meet due to the high risk of violence and the earlier mentioned damaged infrastructure. The responding organizations lacked the ability to efficiently evaluate the logistic needs to support the humanitarian response needed.

Getting access to the affected area was difficult due to the unpredictable and unstable security situation and the WFP was to facilitate the affected population with humanitarian assistance by using the cluster approach to provide information management and coordination services. This because of the scale and complexity of the crisis, efficient and effective delivery of assistance could not otherwise reach the affected population.

The objectives of the SO are to use the GLC's capacity of storage, transport and communication to reach affected populations and provide emergency relief. The response are to be more effective by supporting the humanitarian response with coordination and information

management tools as well as reliable and coordinated data and security communications. If needed, pre-negotiated alternative corridors for humanitarian goods flow are used.

During an initial response phase, logistic activities such as strategic airlifts, temporary storage facilities in affected regions and GLC coordination and information management was initiated.

4.8 Mali

Mali has been affected by repetitive draughts that has affected an ever growing part of the population, and in March of 2012 a political coup in Bamako caused the country to face even more politically, security- and economically related challenges. Since April of 2012 armed non-state groups have replaced government administrations, taken control over the local economy and forced Sharia law in to action in multiple areas. Thousands of people have been forced to leave their homes and in November of 2012 the number if internally displaced persons was estimated to have passed 200,000.

The purpose of this SO was to provide logistics communication mechanisms, means and common services as a response to the crisis in Mali with the role as coordinator and provider of Information Management. The cluster was to be prepared for both emergencies as well as potential aggravation of the political and security context within the country. The GLC was activated in April of 2012 but the humanitarian community requested that the cluster was extended and continued to fill the gaps and respond to needs expressed by their partners. The GLC (and the ETC) was to support UN agencies, but international NGOs as well as local NGOs that participated in the response to the crisis, and over 32 different organizations was to gain from the activities in the SO.

The capacity from the ETC and the GLC was increased to compensate for an expected decrease of private sector logistics services. The capacities of the private sector, as well as the needs of the partners within the GLC were to be constantly monitored to identify potential gaps. An example of a gap in this case is the potential fuel shortage. In order to decrease this situation, contingency plans covering a solution for access to fuel was created by The Global Cluster and shared among the humanitarian community.

The objective of the GLC is to ensure that the communication between partners remain efficient as well as continuously monitoring the situation to identify potential needs. Established relations within the GLC forum should also be reinforced and a strong coordination cell in

Bamako should be maintained. In line with the objective of the GLC has to provide well trained staff to operate for example the communication mechanism and to respond to and coordinate requests made by partner organizations. An example of a request is the wish for pre-positioning of contingency stocks (such as tools or emergency items).

4.9 Pakistan

The armed forces in Pakistan intensified the offensive against armed groups originating from North Waziristan. The intensification was a response to a breakdown of peace talk between the government and the armed groups. As a result, Pakistani inhabitants were not only displaced but also located in challenging environments with insufficient infrastructure. The cluster was activated to overcome those infrastructural challenges and to provide support to the humanitarian community's task of helping the displaced people in a coordinated and rapid manner.

The task of coordination was managed through strategically placed coordination cells and via weekly meetings with other humanitarian organizations and the local government. Information management was supported with for example GIS-systems. Other activities to help reach the goal of the operation were shelter items such as blankets and tarpaulins and storage in three main logistics hubs.

4.10 Philippines

The Philippines suffered badly from a typhoon November 8, 2013 and it affected 36 provinces. With the addition of heavy rain and rainfall the disaster took around 10.000 people's lives and displaced around 600.000 people. The affected area was expansive, covering numerous of islands around the main land of the Philippines. The disaster damaged the infrastructure, both road, airports and ports, badly. The people ended up with little or no access to food, shelter and water. As well, the disaster resulted in interrupted telecommunication systems and electricity systems.

The main objectives of the SO was to support the humanitarian community by facilitating and coordinating effective logistics and information management and facilitate the delivery of food, shelter and water by increasing the logistics capacity and telecommunications through skills and knowledge on this matter.

To meet the objectives of this SO, the first issue regards identifying gaps in the humanitarian response. This was made by coordinating with the local government. The second, concerned accessing affected areas using essential logistics equipment and telecommunications systems as well as information management and coordination support.

Due to the country's damaged infrastructure, the rapidly evolving situation on the ground and the fact that it consists of islands, transportation, services such as air-, road-, and coastal transportation will be used when most appropriate.

4.11 South Sudan

Violence erupted in the capital Juba in December 2013 and deteriorated the already unstable environment. The increase in violence resulted in displacement of over 1.95 million people and the situation has worsened since then. This hostile environment has caused a disruption of land transportation. Moreover, the country has little logistical resources, is affected by heavy seasonal rain, and has got poor infrastructure and security constraints which hinder humanitarian organizations to deliver necessary aid.

The GLC was activated in October 2010 as a response to the challenges faced in South Sudan. In December, the GLC scaled up to meet the even more violent nature in the country. They comprise of covering vast distances in a complex operating environment due to the reasons mentioned above. The purpose was to coordinate the operations through weekly meetings with partner organization as well as providing information management support. Other support included storage facilities, air-, road-, and river transportation and emergency infrastructure rehabilitation. The activation of the cluster was facilitated by the access to skilled and devoted staff.

4.12 Syria

Syria has, during a 4 year-period, been affected by riots and this has led to a demand for humanitarian assistance from around 12.2 million displaced people. Due to the ever changing political and security landscape, and the length of the conflict, a continuous need for humanitarian assistance has been identified. Not only will the assistance fill gaps but it will also provide Syria with a more holistic support strategy to help the entire country, not certain communities.

The GLC was officially activated with the aim of providing tailored logistical, telecommunication and coordination support. Both as a last provider in filling identified gaps but also to ensure the strengthening in logistics network and to help local and humanitarian organizations gain capacity to provide aid. Another goal of the SO was to provide logistics services such as road- and air transportation and storage facilities.

Some risks have been identified, which are for example closure of cargo deliveries, the possibility of rising demand for necessities by beneficiaries and delivery delays due to customs/border issues. The risks are mitigated through negotiations and maintenance regarding alternative delivery corridors, pre-positioning of items and early start with customs related matters.

4.13 Yemen

Yemen has experienced armed conflicts, violence and security issues, leaving people with a lack of food and a poorly functioning government. A large number of internally displaced people has also been identified. Yemen is currently in the midst of a humanitarian crisis and political transition. Disagreements among political parties creates tension and has led to armed conflicts and this has affected the government's ability to provide basic services, such as fuel, due to high oil prices.

The purpose of the activation of the GLC was to provide safe access to beneficiaries, in order to deliver appropriate aid for people in need. Also, provide and distribute fuel so that a minimum operational level can be maintained by the humanitarian community as well as ensuring a well-coordinated humanitarian response. A well-coordinated response was reached by for example contingency planning concerning how to move staff between places in the country. The purpose can be met by first managing air traffic services in Yemen so that aid can reach beneficiaries in a secure way. Aid can also reach its recipient through procurement of fuel from the official dealer and provide to humanitarian organizations, the providing of coordination and information-sharing through for example GIS-mapping and the insurance of available storage facilities.

5 Analysis

The analysis will present identified preparedness related activities carried out by the GLC. These activities will be connected and compared to the literature of logistics preparedness in humanitarian operations.

5.1 Challenges within the humanitarian sector

The humanitarian sector deals with several challenges. The one major issue, which is presented by Kovács and Spens (2007), is the case of coordination issues of logistical activities. Jahre and Jensen (2010) present a cluster-based system as suitable solution to the coordination issue and this task exactly what the GLC is activated to fulfill. Hence, The GLC takes the role as a coordinator of logistics activities and provider of Information Management tools in order for the logistics related activities to be coordinated and in the end the right aid can be provided to the right recipient without any duplicated efforts. For example, in Democratic Republic of Congo, the use of the LCA platform and the support to the logistics actors with GIS-information, the coordination of vital supplies can be facilitated. Vahid-Moosavi and Noorizadegan (2009) concludes that the way the GLC provides information management support, ensures a cost-effective response as well.

The issue concerning coordination can be seen as a result from some complexities that the humanitarian sector is facing, where Jahre and Jensen (2010) present the first one as the presence of multiple actors. This can be seen in the case of Central African Republic, where both UN agencies and NGO's are present to provide aid. One of the tasks of the GLC in this case was to consolidate and organize vehicle usage among every participating organization. In this way, the capacity of every participating organization, both local and global can be utilized (which is one improvement that the GLC contributes to according to Jahre and Jensen (2010)) and aid can be provided to the beneficiaries.

Aslanzadeh et al. (2009) and Overstreet et al. (2011) brings forward another issue which is unpredictable environments. This situation becomes clear when one learns about the environment that the GLC is facing when entering an area of logistics gaps that needs to be filled. The unpredictable environment is illustrated in the cases of Gaza/Palestine where only one entry point was open to cross the border, and in the Philippines where a typhoon destroyed

the infrastructure. Another example is the escalating and unpredictable conflicts in the Democratic Republic of Congo leading to internally displaced people in need of transportation.

5.2 The importance of preparedness

Jahre and Jensen (2010) explain that WFP as the leader of the GLC should ensure that capacity to respond is available. Moeiny and Mokhlesi (2011) add that even though it is difficult to fully prepare for a humanitarian operation, preparedness activities result in a more effective response. Kapucu et al. (2007) goes as far as viewing logistics as a crucial part of preparedness and as the GLC is the provider of logistics support in terms of coordination and information management tools, the existence of the GLC is of great help during humanitarian operations.

Several activities presented by Kunz et al. (2014) are categorized as; inventory, infrastructure, human resources, knowledge management, process management, resource and community. The most common activity is the training of staff and pre-positioning of goods such as food and supplies, which falls under human resources and inventory. Pre-negotiations regarding transportation routes and customs related matters have been identified in the case of Syria and those activities are included in the process management category. Contingency planning activities have also been identified in the case of Yemen and Mali. Table 3 below will show an overall view of the role of the GLC as well as the extracted preparedness activities carried out by the GLC.

Nr	Area	Role of the GLC	Preparedness related activities
1	Central African Republic	Coordination and Information Management	Negotiations with Governments on safe passage and humanitarian transportation corridors
			Pre-positioning of goods
2	The democratic Republic of Congo (DRC)	Coordination and Information Management	No information of preparedness activities
3	West Africa - Ghana, Guinea, Sierra Leone and Liberia	Coordination and Logistics services to support UNMEER	Maintenance of alternative corridors
			Pre-positioning of equipment
			Contingency planning on Ebola hazard contexts
			Training of staff
			Early start with customs procedures
4	Gaza/Palestine	Coordination and Information Management	Maintenance of alternative corridors
			Pre-positioning of equipment
			Trained staff available
			Negotiation with government on opening borders for humanitarian cargo
5	Iraq	Coordination and Information Management	Negotiation regarding humanitarian transportation corridors, to use when needed.
6	Mali	Coordination and Information Management	Training of staff
			Pre-positioning of contingency stocks
			Contingency planning due to risk of fuel shortages
7	Pakistan	Coordination	No information on preparedness activities
8	Phillipines	Coordination and Information Management	Training of staff
9	South Sudan	Coordination	Training of staff
10	Syria	Coordination and Information Management	Training of staff
			Maintenance of alternative corridors
			Pre-positioning of equipment
			Early start with customs procedures
11	Yemen	Coordination and Information Management	Contingency planning to ensure movement of staff
			Training of staff

5.3 Connections between preparedness and response

According to Kovács and Spens (2007), the prepared plans are put into action in the response phase and the challenge is to make the response as good as possible. WHO (2015a) continues to explain how preparedness is crucial in order to respond to a disaster in an appropriate way and Pazirandeh et al. (2015) have noticed an increasing demand for a prepared capacity to respond when affected areas call for aid. The IFRC (2015c) sees disaster preparedness as a continuous process, as does Overstreet et al. (2011) who argue that preparedness is a steady state action.

The response phase is faced with complexities regarding for example the demand and the type of demand. The first complexity that is presented by Kovács and Spens (2007) is the demand management. It is necessary to try to assess the demand and GLC does that when it has already been activated. One example is from the case of Central African Republic and the information that can be retrieved from a demand assessment is the amount of aid needed. It can be expressed in terms of people who suffer from food shortages, what type of food they require, spoken language and so on, in order for further support to be tailored and useful.

The third challenge concerns fulfillment management and the work of the GLC is made both in terms of preparedness and during the response phase. Response activities concerns the filling of logistical gaps identified by other humanitarian organizations in the field. Pre-negotiation regarding transportation routes and border related matters are included in preparedness related activities.

5.3 The impact of a disaster

The vulnerability of a region is defined by its capacity to foresee, handle and recover from hazards. In the cases examined, the vulnerability of the region required that capacity was accumulated elsewhere, the GLC was activated, and the impact of the disaster was prevented from reaching irreversible levels.

As the hazards can be categorized as man-made or natural, Table 4 will categorize the hazardous events that have affected the regions of our study.

Table 4 – The nature of the hazards in the case studies			
Nr	Area	Type of disaster	
		Natural	Man-made
1	Central African Republic		X
2	The Democratic Republic of Congo (DRC)		X
3	West Africa - Ghana, Guinea, Sierra Leone and Liberia	X	
4	Gaza/Palestine		X
5	Iraq		X
6	Mali	X	X
7	Pakistan		X
8	Phillipines	X	
9	South Sudan		X
10	Syria		X
11	Yemen		X

The hazards were strictly man-made in many of the operations that the GLC was activated in during 2014, but there were also natural hazards and as the Mali case shows, a combination of the two. The ability to provide logistical assistance regardless off the nature of a disaster can allow the response phase to be more effective and efficient and therefore mitigate the impact of the disaster. In the case of Gaza/Palestine, it is apparent how the ability to provide immediate support affects the result of the operation.

6 Conclusions

In this chapter, our conclusions will be presented and we will introduce areas to be studied further to gain more knowledge of the humanitarian sector.

6.1 What is logistics preparedness in the humanitarian sector?

In our research, we found that both researchers and humanitarian actors have identified and categorized preparedness activities. Activities in the preparedness phase of disaster relief aid are presented under the umbrella term contingency planning, a management tool for shortening response times. We feel that the shortening of the response times is this is the core focus of preparedness within the humanitarian field. It seems to us that many actors and researchers are very desire to shorten the response times and we see no other phase to reach those goals than in the preparedness phase. If the impact of a disaster can be mitigated by responding to it by following a series of prepared actions, the response phase has a good chance of becoming successful in terms of shortened response times and more lives saved.

Both the humanitarian actors and researchers seem to agree what the outcome of the preparedness phase should consist of, but not the specific details within the preparedness phase itself. Logistics was presented as a bridge between the preparedness phase and the response phase, we see how that is an appropriate and fitting metaphor based on the arguments we have presented. The work to facilitate responses should, according to us, not be tied to the need for a response but be an ongoing process to predict and prevent disasters worldwide. To us, the logistics preparedness should have a permanent place in the disaster preparedness phase due to its ability to affect the lives of the affected population if used properly. In other words, the GLC should continue working on preparedness activities since the ability to save additional lives is enabled by a more coordinated and efficient response phase.

6.2 How can the activities performed by the GLC be connected to the preparedness phase of humanitarian operations?

The purpose of this thesis was to map how the GLC is used in the humanitarian sector and how the activities performed by the GLC can contribute to better logistics preparedness. We have reached the conclusion that the use of the GLC should be considered part of the logistics preparedness phase of humanitarian operations as well as the already important role of the response phase. The possibility to activate the cluster when needed in the response phase,

implicitly puts the work of the GLC in the preparedness phase as it increases the capacity to respond in accordance with the disaster equation. The key to an effective response is appropriate preparedness, and we propose that the tool to reach appropriate preparedness is the use of the GLC.

By including the GLC in the preparedness phase along with their current role of the response phase of humanitarian logistics, their efforts initiated in the response phase will have greater impact. An opportunity to achieve a more coordinated response and the ability to reach affected populations faster arises since the GLC possess knowledge, access to capacity, an ability to repair infrastructure and have a network of pre-negotiated relations with governments to access affected areas quickly.

We would also like to argue that the existence of the GLC is a form of preparedness activity in humanitarian logistics itself. The GLC stand ready to activate their capacity when the humanitarian community request their support and therefore they are prepared to act when needed. Logistics and capacities are difficult to coordinate on short notice, and the GLC contributes to better coordination and use of capacities since they use a similar approach and set of activities to respond to different kinds of disasters.

6.3 Contributions

We consider the lack of information on the logistics part in the academic literature as a sign of little recognition of its relevance and importance to the outcome of the operations. As mentioned above, preparedness, the logistics part included, seems to be the key to an effective response. In addition, the cluster approach seems to be a solution to a great issue identified in humanitarian operations and according to the case studies presented, the GLC seems to work in a standardized way. In other words, it does not seem to matter what kind of disaster the GLC is facing as they still provide the same type of support by filling logistics gaps and enabling communication. Also, preparedness can be viewed as a steady state action (Overstreet et al. 2011), therefore it would be suitable to combine the two standardized ways of working and together come up with preparedness plans. Practitioners can use the data in this thesis to better understand the mechanisms for coordination that are available in the field of humanitarian logistics to better utilize its full potential.

6.3 Future research

One of the most important elements in the GLC is the cooperation of the members in the GLC. If they do not cooperate, and decide to use limited resources such as airports, roads or trucks to gain only their own efforts, coordination of humanitarian efforts will be an impossible task. This study has not had an opportunity to investigate the actors attitude toward, or willingness to cooperate with, the GLC which would be necessary to draw conclusions regarding the future possibilities of reaching a better logistics preparedness and more effective and efficient humanitarian aid. More research has to be made regarding the attitudes of the members in the GLC and how their mindset may affect the effectiveness and efficiency that exists isolated in the theory, but might not exist in the field. The GLC is operated under the World Food Programme and therefore the UN, and other actors might not want to be controlled by the UN when they perform humanitarian operations. Research on attitudes toward the GLC will help determine its success or ability to coordinate humanitarian operations.

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