NGOs’ effects on humanitarian logistics of disaster relief in China

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## Abstract

Humanitarian Logistics (HL) has been a hot topic after Lushan Earthquake in China because of its crucial position in the process of disaster relief. This paper has researched how NGOs have affected HL. Two international and two Chinese cases have been studied and compared, and the success factors and barriers of NGOs’ participation in HL of disaster relief activities in China have been identified. These NGOs are all newly founded, and highly involved in the first two stages and less involved in the last stage of disaster relief. Their quick response and diversified channels of funds rising were the main reasons for successes. However, the inflexible cooperation with the governments was their most significant barrier of them.

**Keywords: humanitarian logistics, disaster relief, earthquake, China**

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# Chapter 1 Introduction

## 1.1 Relevance

An earthquake which was assessed at 7.0 of the magnitude occurred in Lushan, China, on April 20th, 2013 (Demick, 2013). The suffered region almost covered the entire Sichuan Province, which not only led to 180 death and 11,227 injuries but also destroyed large amounts of infrastructure, such as buildings and electricity grids (Xinhua, 2013). Carrying out relief activities should be put onto the most important position after the earthquake, because there were not only a lot of lives to rescue, but also an extraordinary demand of medical facilities and life necessities need to be satisfied.

The relief activities were largely compounded by logistics (Apte, 2009). Comparing to commercial logistics, it was not easy to organize humanitarian logistics (HL) because it was always struggling in the very difficult situations because of the damages (Kovacs & Spens, 2007). Meanwhile, Balcik and Beamon (2008) pointed out some unique characteristics of HL, such as unpredictable and sudden demand, time limits and lack of resources.

The last point, which is lack of resources, is more problematic for NGOs that are usually in different or small scales, thus not able to obtain abundant resources and knowledge (Shieh, 2010). In China, NGOs were unorganized, inactive and unconnected with each other before 2008. The public awareness of NGOs started to rise because of their efforts on the relief after the occurrence of Sichuan Earthquake, which caused 100,000 deaths, but also 85,000,000 dollar damage (Université catholique de Louvain, 2013). For example, some NGOs promptly brought water and medicine to remote villages before the military, which boosted the speed of HL in the relief activities. NGOs have been developing rapidly since then. One reason of their development was the experiences they gained from the participation of relief. Another was more publicity about their contribution in the relief made them easier to attract financial resources (Cai, 2009).

As a consequence, the organization and application of post-disaster humanitarian logistics (HL) in China became a focused issue after the earthquake, because of NGOs’ strength has been playing an important role in the post-disaster HL (Cai, 2009).

## 1.2 Aim

China has the fourth largest land area and the largest population; as a consequence, Chinese people would probably experience more types and amounts of disasters which can cause enormous economic losses than the other people in the world. Chinese NGOs have concerned to improve the speed and effectiveness of HL, the core component of disaster relief, which can significantly assist disaster relief activities (Kovacs & Spens, 2011). Therefore, it is necessary to study the effect of NGOs’ participation in the HL after the disaster in China.

The paper is aiming to identify the success factors and barriers of NGOs’ participation in HL of disaster relief activities in China. In order to examine the effects, some key performance indicators will be created during the analysis.

## 1.3 Research question

### Main research question

*How have NGOs influenced humanitarian logistics on disaster relief activities in China?*

### Sub-questions

Secondary questions are created to support and guide the main research question. Therefore, some sub-questions are raised as follows:

* What are the main different aspects between commercial and humanitarian logistics?
* What are the definition and duties of Chinese NGO in HL?
* What are the key performance indicators of HL in China?
* What are the success factors and barriers of organizing HL by NGOs in China?

## 1.4 Method

In this paper, the research is based on literature review and case study. First some theories of HL and NGOs from the literatures are going to be introduced in order to give an overview of HL and NGOs in the disaster relief. After necessary theoretical analysis, some key performance indicators will be found in order to evaluate the following cases:

* Citizen Supporting Organization in Great Hanshin Earthquake, Japan, 1995
* Nongovernmental Rebuilding Alliance in 9/21 Earthquake, Taiwan, China, 1999
* Youchange China Social Entrepreneur Foundation in Sichuan, China, 2008
* One Foundation in Sichuan, China, 2008

These cases are all selected from the reports in the newspapers and websites about well-known earthquakes in the world. The key performance indicators will be used to evaluate the effects of NGOs’ HL. Focusing on the experiences gained from Asian regions can be more comparable for the following studies about China, because they are closely related to each other in both geographical and cultural perspectives. Then the other two cases will be analyzed by the same way from domestic point of view. From study of previous cases, some inspirations about current disaster, Lushan Earthquake, will be addressed.

## 1.5 Structure

In order to get the answer to the research question, the paper will be structured as follows. In the second chapter, first three sub-questions will be discussed, in order to illustrate basic theories about HL and NGOs. In the third chapter, the case studies will be focused in this chapter, by applying the theories explained in Chapter two. The last sub-question will be answered after the comparison between the international and domestic cases, because some unique successful factors and barriers need to be pointed out. Furthermore, it will give a summary on the findings of all the cases. In the fourth chapter, the answer of main research question will be revealed, and some policy recommendation will be stated.

# Chapter 2 Theoretical Review

## 2.1 Definition of Commercial and Humanitarian Logistics

Before we analyze the topic “humanitarian logistics” more deeply, a few definitions need to be understood. In fact, there is a large boundary of the definition of logistics, because different organizations have different doors to get assess. But essentially, it is in relation to the movement of goods, service and information (Lummus, Krumwiede, & Vokurka, 2001).

The concept of logistics has evolved over time. In the earliest time, the word “logistics” came from military applications. It was all the activities and methods used in order to satisfy the supply of army forces, including inventory requirements, transport and distribution. Furthermore, he also recognized that logistics not only included the physical movement, but also involved a large amount of the mixed activities, which consisted of planning, calculation and as well as physical activities.

After the war time, the efficient application of logistics in the military started to attract business people’s eyes. Different organizations were trying to make specific definition of logistics for business use. For example, APICS, a leader of global supply chain and operations management distinguished business definition from military definition. From the perspective of business, the process of logistics can be seen as to obtain, produce and distribute materials and products in the appropriate places and quantities. But in a military sense, it can also include the movement of personnel. At the same time, The Council of Logistic Management (1998), which is the most professional organization in association with logistics, defined that commercial logistics as “the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services and related information from the point of origin to the point of consumption for the purpose of confirming to customer requirements.” (p.2)

In addition, the definition of humanitarian logistics (HL) shares basic parts with the other two types of logistics mentioned above, it also contains the movements of goods and people. Nevertheless, the “customer” of HL is completely different from the other two, because its starting point is to save people from sufferings. In 2004, HL was defined as “the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from point of origin to point of consumption of the purpose of meeting the end beneficiary’s requirements (Thomas & Mizushima, 2005, p.1).”

## 2.2 Comparison between Commercial and Humanitarian Logistics

Through different definitions for three types of logistics, it is obvious that they all build upon the basis of the mobility of goods and people, but ends in the separate objectives. Military logistics serves the army forces; commercial logistics aims to satisfy their customers; and HL contributes to help vulnerable people affected by the disasters (Wassenhove, 2006).

However, comparisons between types of logistics should be far more than definitions. McLachlin et al. (2009) indicated two dimensions of difference between commercial and humanitarian logistics, which are motivation and environments. In commercial logistics, the biggest motivation of conducting is profit, while humanitarian logistics are usually conducted by non-profit organizations. Meanwhile, commercial logistics generally operates in uninterrupted environments, but humanitarian logistics operates in interrupted environments very often.

In fact, there are two main streams of humanitarian logistics: continuous aid and disaster relief, which lead substantially different ways of operation (Kovacs & Spens, 2007). For example, HL which concerns to help people famine regions is under uninterrupted environments; but HL which aims to rescue people after an earthquake is under interrupted environments. In this paper, the stream of disaster relief will be focused.

Under uninterrupted environments, political and economic conditions are reasonably stable; infrastructure is in place; and all the actors (suppliers, customers and etc.) are on the stage. Taking profit-driven motivation and uninterrupted environment into account, commercial logistics can adopt analytical business models which help companies make predictions about customer demands, and thus optimize their activities (Holguín-Veras et al., 2012). In terms of cargo transportation, companies always know the nature of the cargos and in which route they are going to be transported. Thus, logisticians can make routines according to the information about the feature of every cargo in every order, in order to organize operations according to the time needed. Furthermore, as one of the most frequent activities in business, there are already a lot of decision-making procedures. Companies are able to involve a relatively small group of decision makers.

On the contrary, HL with a non-profit motive emphasizes social objectives rather than economic objectives. Under interrupted environments, operation of HL is challenged by a lack of stability and greater complexity. For example, logistics infrastructures are often damaged after a disaster, which will impede logistics to satisfy large volume of sudden demand. Furthermore, unpredictable disasters result in difficulties of matching multiple sources of supply with shifting customer demand (McLachlin, Larson, & Khan, 2009). Therefore, HL usually complies with phases of emergency management, for example, mitigation, preparedness, response and recovery (National Governors' Association for Policy Research, 1979; FEMAIS-1, 2010).

Table 2.1 summarizes main differences aspects between these two types of logistics.

**Table 2.1: Differences between commercial and humanitarian logistics**

|  |  |  |
| --- | --- | --- |
| TypeDimension | Commercial Logistics | Humanitarian Logistics |
| Motivation | Profit | Non-Profit |
| Environment | Stable | Unstable |
| Demand | PredictableUnsudden | UnpredictableSudden |
| Model Used | Business model | Emergency management |

**Source: own elaboration**

## 2.3 NGOs in Disaster Relief

### 2.3.1NGOs in China

NGO is abbreviation of “Non-governmental Organization”. At the beginning, word of “NGO” generated from United Nations, which basically referred to the organizations with no part of government or representative from a government. NGO does not mean only “non-governmental”, it also has a wide range of alternative meanings, such as “non-profit”, “voluntary” and “civil society” organizations. It is resulted from cultural and historical differences between different countries, which lead to different way of thinking (Lewis, 2009) . For example, in the USA, NGOs are considered of “non-profit organizations”; in the UK, NGOs tend to work as “voluntary organizations” and “charities”.

NGOs emerged in 1990s in China. At the beginning, they mostly were aiming to build an environmental-friendly society. Until 2008, they had been developed slowly and inconsistently, and thus had limited capacity (Zhao, 2011). According to Chinese Ministry of Civil Affairs, the term “NGO” has been defined as:

“The formal and non-profit target organizations have no government components. They have certain levels of autonomy, voluntariness, public or mutual benefits.” (Li, 2003, p.23)

In 2003, Li also categorized Chinese NGOs into two types: mutually and public beneficial non-government organizations. On one hand, most of mutually beneficial NGOs have membership. There are also two major fields for this type of NGOs, which are economic and social. In economic field, NGOs include the chamber of commerce, labor union and professional organization. They are important components of profit-targeted organizations, like enterprises, and their activities are closely related to them. In social field, NGOs are for example, some study associations, group of interests. No matter in the economic or social field, these NGOs shares a common feature with each other, which is away from the market.

On the other hand, public beneficial NGOs are divided into two categories: membership and non-membership. The latter one can be further divided into foundations (operational-based and donation-based) and substantial social service providers (non-profit schools and hospitals, religious organizations, etc.). In the case studies of Chapter 3, two Chinese NGOs which are Youchange Foundation of Entrepreneurs and One Foundation are donation-based and operational-based, respectively.

### 2.3.2 Chinese NGOs in Humanitarian Logistics

Disaster relief is a process which consists of several stages. Lee and Zbinden (2003) discussed three stages of HL operations of disaster relief: preparedness, during operations and post-operations. Kovacs and Spens (2007) elaborated these stages of operations in details that different stages of operations should take place in different time periods, which are before disaster strikes, instantly after disaster strikes and aftermath of disaster strikes. In their opinion, disaster relief can be classified as three phases: preparation, immediate response and reconstruction.

Chinese NGOs were highly praised because of their prompt response of disaster relief in Sichuan Earthquake in 2008. In fact, none of them are organized for disaster relief, meaning thatthe primary mission of these NGOs was not disaster relief, but they all participated relief activities from different aspects. Xiao and Fan (2010) analyzed NGOs’ functions during Sichuan Earthquake, which indicated that the most important stages of those NGOs participated in were immediate response and reconstruction. Furthermore, the stage of immediate response can also be divided into two stages: rescue stage and relief stage.

Combined with the features of Chinese NGOs, three stages of disaster relief process for NGOs can be described as follow:

**Figure 2.1: Stages of disaster relief for Chinese NGOs**

**Source: own elaboration**

Naturally, different resources and skills are needed for the three distinct stages (Kovacs & Spens, 2007). Indeed, NGOs should have different duties of HL for each stages of disaster relief.

1. **Rescue Stage**

Rescue stage starts from the time of disaster happened, and will last one week. The most critical mission for this stage is saving lives, especially in first 72 hours, which is called “Gold 72 hours”, because people are most likely to survive if they are rescued in this period. Thus, demand in suffered area includes rescue and salvaging facilities. However, during this period, capacity of logistics is restricted because of not only damaged infrastructure, but also all the unknown factors – set of suppliers, manufacture sites, and predictable demands. But rescue needs the most immediate response, because it is competing with time and lives. HL should be redesigned and deployed even though it faces very difficult situations (Kovacs & Spens, 2007).

NGOs have flexible personnel and equipments and thus can quickly drive to suffered area and rescue people. For example, they can go by small groups with off-road vehicles to the suffered areas which are not capable to allow big-sized military vehicles to enter (Xiaoxiang Morning Newspaper, 2008). In this way, NGOs can facilitate sending professional people with rescue knowledge and some small and light facilities to start rescue as soon as possible.

1. **Relief Stage**

Relief stage takes place 1 to 2 months after the disaster. The effect of disaster is mitigated over time. Instead of saving lives, the most important mission is providing normal life necessities for survivors.

NGOs have advantages on demand-oriented services. They can discover people’s need from details because they are organized from various industries and thus have quite other ways of thinking. They are able to try to fulfill special, group-preferential or personalized demand which government are hardly consider, for example, female products, milk powder, and vegetarian food (Qin & Meng, 2012).

1. **Reconstruction Stage**

NGOs also take part in long-term disaster relief activities. Reconstruction is normally takes 1 to 2 years after disaster strike. Victims desire psychological care to recover from what they have experienced. Therefore, most important duty for NGOs in this stage is to provide psychological assistance, since some NGOs have large composition of professional psychological members. Thus they can not only send these professional people to help the victims but also give advice to other actors about psychosocial rehabilitation facilities.

Furthermore, NGOs can also contribute to reconstruction project, since many of their members are entrepreneurs, which might help suffered people in the perspective of business. In addition, it must be needed for huge capital and human resources in this stage, which usually go beyond of NGOs’ capacity. As a consequence, NGOs usually have to cooperate with government and enterprises frequently because they have great responsibility in this stage (Cai, 2009).

Above analysis has also shown differences of NGOs’ degrees of involvement in three stages. NGOs are highly involved in the first two stages, but less involved in the third stage due to their shortage of capacities. Thus, this paper will focus on NGOs’ activities in the first two stages which are rescue and relief.

Table 2 summarized NGOs’ duties and degrees of involvement in disaster relief activities.

**Table 2.2: NGOs in disaster relief**

|  |  |  |
| --- | --- | --- |
| Stage | Degree of Involvement | Duties of NGOs |
| 1 Rescue | High | Send people and facilities for rescue activities immediately |
| 2 Relief | High | Discover and satisfy special demand of suffered people |
| 3 Reconstruction | Low | Send psychologists and give advice of psychological rehabilitation facilities |

**Source: own elaboration**

## 2.4 Key Performance Indicators of NGOs’ HL

Performance measurement of logistics is crucial to NGOs accountability, because it is the most expensive part of a disaster relief chain (Beamon B. M., 2004; Wassenhove, 2006). As actors of disaster relief, it is not surprising that NGOs always receive numerous attentions from society. Contributors, donors, relief participants will question the NGOs about how their fund has been used. If NGOs are not able to give an efficient, effective and transparent statement of their operations, they will be attacked by those people. Especially in China, one of the limitation of NGOs’ growing is crisis if credibility. At the same time, a good performance measurement is beneficial to NGOs as well, because it can help managers make better decisions, improve performance and provide accountability (Poister, 2003). Managers are also able to have efficient feedback with the assist of these measurements (Beamon & Balcik, 2008).

Thus, it is necessary to create some key performance indicators to measure NGOs’ activities of HL in disaster relief. As logistics is a part of supply chain, HL is a part of relief chain. In section 2.2, we mentioned that commercial logistics shares some similarities with HL; thus, some methods and measurements in commercial logistics can also be adapted to HL (Beamon & Balcik, 2008).

However, unlike commercial logistics just focuses on financial sustainability, NGOs have another important bottom line: mission effectiveness. Based on these two principles, Davidson (2006) and Beamon and Balcik (2008) have found two sets of indicators.

Davidson (2006) developed a framework of key performance indicators in HL based on actual relief operations. This framework purposed four indicators: appeal coverage, donation-to-delivery time, financial efficiency, and assessment accuracy. First two indicators place emphasis on time and the latter two focuses on financial efficiency.

Appeal coverage measures how quickly an organization can find donors and transport goods to the suffered area at a specific point of time. Donation-to-delivery time directly monitors the time spent from the point of donor pledged to donate to the point that the goods are shipped. Financial efficiency weighs up the gap between budgeted and actual costs, and the weight of transportation costs in total costs. Assessment accuracy judges how the final budget changes over time from the original budget of an organization.

Later, Balcik and Beamon (2008) combine it with performance indicators of commercial supply chain. They derived resource, output and flexibility metrics for non-profit humanitarian relief chain.

First, resources metrics aim to estimate the level of efficiency. NGOs need to accurate estimation of funding requirements for distribution of goods, and try to save more people with certain amount of cost. NGOs without sufficient ability to use their resources will have problems with donors in future. Second, output metrics aim to investigate the level of effectiveness, which is the actual amount and validity of aids NGOs provided. Response time has to be included in as well, because delays will result in increasing death and suffering, although NGOs has provided right goods. Third, flexibility metrics aim to weigh the ability to respond to a changing environment. Highly unstable and uncertain condition and emergency management require high levels of flexibility performance. NGOs should be flexible not only in organizing HL by themselves, but also in cooperating with other actors in HL, e.g. government.

From above analysis, these two sets of indicators above measure effectiveness of mission and efficiency of financial resources using similarly. But the metrics of Balcik and Beamon have another line of measurement of flexibility. In the previous section, it has been presented that changing environment is the most significant challenge of HL in disaster relief, thus, flexibility should be a crucial indicator of performance measurement. In other words, Balcik and Beamon’s performance indicators are more suitable for HL in disaster relief.

As a result, it can be conclude that there are three key performance indicators of NGOs for HL in disaster relief: financial efficiency, output effectiveness and flexibility (See Figure 2.2).

**Figure 2.2: Key performance indicators of NGOs for HL in disaster relief**

Financial Efficiency

Output Effectiveness

Flexibility

**Source: adapted from Balcik and Beamon (2008)**

## 2.5 Conclusion

In this chapter, the background information has been provided. First, it has described what is meant by “humanitarian logistics” and figured out its features compared with commercial logistics. Basically, HL operates with a non-profit motivation, unstable environment, and varieties of sudden demand.

Second, definition of “NGO” and their duties in HL have been presented respectively. NGOs have different tasks in three stages of disaster relief. In the rescue stage, NGOs need promptly send professional people and facilities to saving lives. Next, in the relief stage, they could discover and provide special life necessities. Finally, in reconstruction stage, they could be responsible for providing facilities of psychological rehabilitation.

At last, key performance indicators for NGOs in HL have been analyzed. Appropriate indicators will improve accountability of NGOs. There are three key performance indicators can measure NGOs’ performance: financial efficiency, output effectiveness and flexibility. They will be illustrated further in the case studies in Chapter 3.

# Chapter 3 Case Studies

## 3.1 International Experiences

### 3.1.1 The Great Hanshin Earthquake in Japan

On 17 January, 1995, the Great Hanshin Earthquake took place in Kobe City. It was one the most severe natural disaster in the 20th century in Japan, according to some statistics, more than 639,686 buildings were damaged as well as thousands people were dead, injured and became homeless.

After the strike, Japanese government responded slowly, they started to rescue people after three days due to communication problems between the local officers and Japan Self Defense Forces. On the contrary, large numbers of volunteers joined in the disaster relief in a short time, which provided significant help in the first several days. In order to manage the large inflow of volunteers and maximize their capacity, a lot of NGOs were established to coordinate with them three days after the strike.

In Osaka, Citizen Support Organization implemented “motor group” strategy in the first week. Motorcycles have advantages flexible and fast in the mobility, so they use them as the main method of transport. But motorcycles cannot sustain large volume logistics, thus they can only be used in the very first stage. During the day volunteers of motor group drove motorcycles to all the streets and collected all kinds of information which would be processed by headquarter during the night. In the second morning, different demand of assistance in different areas will be figured out, and thus amounts of relevant and professional volunteers and goods would be delivered to those areas.

Furthermore, Community Support Center was founded in Kobe on the third day of earthquake happened. In the first three months, volunteers cooked for all the suffered citizens in the park, and provided more than 7000 meals a day at most. They also organized professional help; for example, making dentures for old people in two hours and heating milk for babies.

The most remarkable advantage of NGOs in the Great Hanshin Earthquake was high level of flexibility of themselves. Volunteers were quickly organized suffered areas and different missions were assigned to them in different time periods. But it should be also noticed that these NGOs had insufficient cooperation with other actors in disaster relief process because of immaturity social environment. After the disaster, Japanese government has learnt the importance of NGOs, and thus to enact various laws to protect them. As a result, the year 1995 has been called “the new era of NGO” in Japan.

Unfortunately, exact data of financial positions of those organizations was missing, it probably because almost all of them were disbanded after the end of relief activities of the Great Hanshin Earthquake.

Table 3.1 summarized actions of Japanese NGOs in the Great Hanshin Earthquake

**Table 3.1 HL in the Great Hanshin Earthquake**

|  |  |  |  |
| --- | --- | --- | --- |
| Region: Japan | HL Strategy(ies) | Positive Impact(s) | Limitation(s) |
| Rescue | Used motorcycles to collect information, deliver goods and volunteers | Injured individuals were treated in time | Capacity of motorcycle was limited |
| Relief | Provided special products for old people and babiesCooked in different parks | Solved problems of homeless people primarily | Lack of variety of products |
| Reconstruction | N/A | N/A | N/A |

**Source: own elaboration**

### 3.1.2 9/21 Earthquake in Taiwan

The earthquake struck on September 21st, 1999. It was measured 7.3 on the Richter scale, left an estimated 2400 death and 100,000 homeless people. Nongovernmental Rebuilding Alliance was an emergence organization that combined 180 different original NGOs in Taiwan with the protection of law and relevant regulations. It started operation of relief three days after three days of the disaster, and had profound influence on all the relief processes.

In the first period, the alliance motivated volunteers to assist searching and transporting injured individuals and dead bodies, and provided the majority of death bags (1600 out of 2400) and 10 freezers. Next, in order to allocate and transport donated goods reasonably, they built 31 distribution centers in 14 days, based on level of suffering in different areas. These life necessities including tents, sleeping bags, blankets, bottle water, milk powder and lighting facilities. Moreover, the volunteers kept visiting families to provide psychological recovery as much as possible.

In the perspective of financial resources utilization, the alliance received donation of 10.3 billion new Taiwan dollars (approx. 264 million euro) in total. There was an auditing organization in the alliance, monitoring every flow of financial resources, and publishing financial statement in details every month . Due to the strict administration, no news shows that there is any illegal use of these funds in these years. In addition, the administration costs only 0.007 percent of the total funds. Comparing with 10 to 20 percent administration cost of NGOs in Hong Kong, the financial resources has been used very efficiently. As reported, there were still funds left 10 years after the disaster, which reconstruction in the suffered regions had been already completed .

Table 3.2 shows that actions and impacts of Nongovernmental Rebuilding Alliance

**Table 3.2: Nongovernmental Rebuilding Alliance after 9/21 Earthquake in Taiwan**

|  |  |  |  |
| --- | --- | --- | --- |
| Region: Taiwan | HL Strategy(ies) | Positive Impact(s) | Limitation(s) |
| Rescue | Transported injured people and dead bodiesProvided death bags and freezers | Significantly helped dead individuals’ families | Lack of advanced rescue facilities |
| Relief | Built 31 distribution centers in different areas for donated goods | Various goods satisfied different demands | N/A |
| Reconstruction | Raised large amount of fundsOffered psychological recovery | Efficiently supported reconstruction until finished | Volunteers were not professional psychologists |

**Source: own elaboration**

### 3.1.3 Conclusion on international experiences

In general, both NGOs in two cases assisted disaster relief in Japan and Taiwan. Japanese NGOs were the main forces of disaster relief of the Great Hanshin Earthquake. More flexible and prompt responses were significantly reduced relief time and suffering. Their provision of special service for old people and babies partly met people’s demand, but lack of variety. Furthermore, the cooperation with government was very limited and thus led insufficient attendance in long-term reconstruction.

On the other hand, the Nongovernmental Rebuilding Alliance also quickly responded the earthquake. It met varieties of demand and allocated goods for relief more reasonably. It was exceedingly trusted, even more than the government of Taiwan, because of its transparent financial management. Moreover, they operated under the law protection and thus had better performance on communication with the government of Taiwan.

Therefore, some major successful factors can be derived from these international experiences. First, NGOs should understand the advantages of different means of transport, in order to use them depending on actual situations. Second, information publicity of NGOs will win the trust of people and donors. However, the barriers of operating disaster relief also existed. One of the biggest barriers is insufficient interaction with government. Thus, improving coordination with government is critical for every NGO in the disaster relief.

Achieving high level of key performance indicators also implies successful operations of NGOs. Balcik and Beamon (2008) did not point out how to use their indicators exactly. The three indicators are adopted from them, based on above analysis, two levels - “moderate” and “significant” are used to present the results. “Moderate” represents that NGO had partly or primarily helped and solved the problems of survivors and homeless people. “Significant” implies that NGO distinctively performed in the relief activities.

Table 3.3 compared the evaluation of two cases according to three key performance indicators.

**Table 3.3 Comparison of performances in Japan and Taiwan**

|  |  |  |
| --- | --- | --- |
| RegionKPI | Japan | Taiwan |
| Financial Efficiency | N/A | Significant |
| Output Effectiveness | Moderate | Significant |
| Flexibility | Moderate | Significant |

**Source: own elaboration**

## Sichuan Earthquake in China, 2008

Sichuan Earthquake incurred on 12 May, 2008, measured 8.0 on the Richter scale. It affected more than 500,000 km2 and caused 69,000 people’s death and 18,000 missing. Numerous volunteers and NGOs rushed into suffered regions and made effort to rescue people. Two NGOs made distinctive contribution among the countless philanthropic actions. Their professional, specialized and irreplaceable help impressed society deeply. Therefore, they will be discussed in the following sections.

### Youchange China Social Entrepreneur Foundation

The original purpose of this foundation is poverty alleviation, when top managers heard the news of earthquake; they decided to change it to disaster relief. Mrs. Wang, director of Youcheng foundation, developed emergence scenario of funds rising, and began to call up donation from other entrepreneurs. In the first 72 hours, Youchange China Social Entrepreneur Foundation had collected 3 million yuan from their members and 9.6 million yuan in total.

The first aid group of Youchange traveled to Sichuan one day after. They set up a communication center in Chengdu, the capital of Sichuan Province, and tried to contact local NGOs to know actual situation and demand of goods. At the same time, diversified goods (valued 3 million yuan) were sent by trucks from Beijing. Youchange and their members had donated 246 million yuan by May 26th, 2008.

On 15th, Youchange arranged a 4-ton medicine donation of Fuxing Group, Ltd. The reason of choosing Youchange was that they made a list for the use of every donation, and updated feedback to the donors/companies when the goods were sent to Sichuan. They were also able to allocate those goods efficiently, because of updated results of demand investigation by the office in Chengdu. Moreover, Youchange also handed over 50 off-road vehicles and 500 motorcycles to help send medical staffs, to prevent appraisal of epidemic diseases.

In long-term reconstruction, Youchange focused on taking care of primary education, since a lot of schools were destroyed during the earthquake. The foundation built some temporary classrooms in one month and planned to construct a primary school in Mianzhu City with the materials donated by a Cantonese company.

However, Youchange noticed some unreasonable and inefficient distribution of other sectors. A lot of people donated their goods to local government which has limited capacity for dealing with such volume. In Mianzhu City, Youchange discovered that many warehouses were full of life necessities without any relevant management for those goods. Youchange had no rights to get access to those warehouses, because they were required to apply permission beforehand but they were not aware of it. It was nearly impossible to apply such permission in the emergence situation that normal procedures were all interrupted.

Table 3.4 summarized Youchange’s activities in Sichuan at that time.

**Table 3.4 Disaster relief of Youchange China Social Entrepreneur Foundation in Sichuan Earthquake**

|  |  |  |  |
| --- | --- | --- | --- |
| Region: China | HL Strategy(ies) | Positive Impact(s) | Limitation(s) |
| Rescue | Called up and collected donated funds and goods from different companiesSet up communication center in suffered area | Organized members and some companies partly | Limited people rescuedLack of advanced facilities |
| Relief | Distributed life necessitiesDonated vehicles to help medical treatment | Prevented epidemic diseases in some areas | Unfavorable communication with government |
| Reconstruction | Built temporary classrooms and a primary school in future | Supported reconstruction until finished | Lack of professional psychological care of adults |

**Source: own elaboration**

### 3.2.2 One Foundation

“One Foundation” was one of the most well-known NGOs in China. It was established by Jet Li, a famous movie star in Hong Kong. It has cooperation in various business fields, which facilitated organization and collection of relief goods in a large extent. In other words, One Foundation shared many similarities with Youchange Foundation, but has its own advantages.

In terms of financial resources, One Foundation also opened online channel of donation. People could donate money through Alipay.com (an online payment platform, like Paypal) and goods through taobao.com (a famous Chinese online market). It was the first time of online donation, and thus questioned its legitimacy by society. In fact, legitimacy of fund raising has been a serious problem for all the NGOs in China, and Chinese government has strict regulations of organizing donation via the Internet. Fortunately, One Foundation explained their online donation channel was approved by the government in time; as a consequence, it boosted additional 1 million yuan in 24 hours . By May 15th, One Foundation had received 280 million yuan in total. Jet Li also contacted other elites and movie stars, and held a charity racing game in Shanghai, which added another source of funds collection.

Furthermore, One Foundation took advantage of multiple means of transportation by arranging with Juneyao Airlines to carry certain amount goods in every flight from Shanghai to Chengdu. Volunteers transferred goods to local logistics companies after the arrival of goods.

Table 3.5 illustrates the activities of One Foundation during the disaster relief in Sichuan

**Table 3.5 Disaster relief of One Foundation in Sichuan Earthquake**

|  |  |  |  |
| --- | --- | --- | --- |
| Region: China | HL Strategy(ies) | Positive Impact(s) | Limitation(s) |
| Rescue | Called up and collected donated funds and goods from diversified channelsSent goods and personnel immediately to suffered areas | Opened a new channel of donationCalled attention of famous people in society | Internet channel was questioned at the earliest period |
| Relief | Transported goods with cooperated companies | More goods were delivered | N/A |
| Reconstruction | Took parts in long-term reconstruction projectsProvided psychological care | Supported reconstruction  | Lack of professional psychological care of adultsLack of information about sustainability |

**Source: own elaboration**

### 3.2.3 Conclusion on domestic experiences

Comparing two foundations, both of them well performed in financial sector, they were able to raise and manage funds donated very efficiently. Donation via online channel should be kept in use as an innovative method of disaster relief, since it attracted additional financial resource. Investigating demands in the suffered area and transporting in different ways were also used in the previous international cases, and they also led effective logistic operations in China, thus ought to remain in future.

In terms of goods transportation, both NGOs made effort in sending goods as much as possible. They made significant contribution to transport from different aspects. On one hand, Youchange contributed to medical services. On the other hand, One Foundation was assisted by their aviation partner, which indicated that they took advantage of multiple means of delivery.

Nevertheless, there has been a significant barrier of the cooperation between NGOs and government. Information asymmetry of regulations restricted flexibility of NGOs in emergent situation, which impeded reasonable allocation of goods with limited capacity of government.

Similarly, Table 3.6 compared two NGOs using key performance indicators.

**Table 3.6 Comparison of performances in Japan and Taiwan**

|  |  |  |
| --- | --- | --- |
|  Name of NGOKPI | Youchange China Social Entrepreneur Foundation | One Foundation |
| Financial Efficiency | Moderate | Significant |
| Output Effectiveness | Significant (medical services) | Significant (multiple delivery) |
| Flexibility | Moderate | Moderate |

**Source: own elaboration**

## Comparison between International and Domestic Experiences

It is necessary to compare international and domestic cases, since it will help to identify NGOs’ success factors and barriers of HL in China in details. In general, these cases will be distinguished in the following aspects: level of maturity of NGOs and actions in different relief stages.

To begin with, the cases in Japan and Taiwan happened earlier than the other two Chinese cases.

However, the time difference has not influenced the level of maturity of NGOs. In other words, NGO was a new concept in all the regions of our cases. It was shown that all of these NGOs were founded 1 to 2 years before the earthquakes, but not aware by people became active after the earthquakes. The reason behind this phenomenon might be that the earliest concept of NGO was mentioned in 1945 by the United Nations and emerged in 1990s in China, but earthquakes mentioned in the cases were the most severe disaster in the latest 100 years. These NGOs had few opportunities to deal with such situations and thus lack of experience about disaster relief. Although these NGOs took part in disaster relief activities in different decades, they were in the same level of maturity.

Next, from the tables which presented NGOs’ actions in different stages in disaster relief, some success factors and barriers can be derived by comparing them with each others.

In the rescue stage, first, all the NGOs took a part in transporting goods and relevant volunteers in time. They noticed and overcome the difficulties, such as damaged infrastructure of transportation, sudden and unpredictable demands brought by the interrupted environments, by updating information and using multiple means of transportation for goods delivery. Thus these NGOs partly mitigated sufferings. Secondly, as shown in the cases, international NGOs (especially in Taiwan) emphasized on rescue and search for injured people and survivors in the suffered areas, which Chinese NGOs put less attention in. Second, Chinese NGOs were more advantageous for collecting donations. Youchange Foundation had strong calling among private enterprises, which led a faster process of raising funds from entrepreneurs. One Foundation offered online donation channel with its partner companies. In addition, as a movie star, Jet Li’s popularity attracted more donations by organizing events with other famous people. Third, all the NGOs had won people’s trust by giving transparent financial reports to publicity. In particular, Nongovernmental Rebuilding Alliance in Taiwan insisted publishing reports in the following years and used its financial resources very efficiently.

However, they have some common drawbacks. First, they were lack of advanced equipments for rescuing. In fact, the rescue stage was supported by some advanced methods and materials in Sichuan, which were provided by military hospitals. NGOs in general had few accesses to such kind of resources, and thus limited their capacities of rescue activities. Second, to some extent, they had insufficient communication and inflexible cooperation with government. It was resulted from information asymmetry between governments and NGOs before the disasters. As a consequence, a lot of donations were inefficiently distributed and wasted.

In the relief stage, all of these NGOs made effort on satisfying various demands of life necessities (Japan was less well-performed, but still provided special services). In Taiwan, there were established 31 temporary distribution centers resulting in efficient allocation of goods. In China, the distribution centers were only constructed in big cities, such as Chengdu. Thus, there were several blind points, because the suffered areas were covered the whole Sichuan Province. Furthermore, One Foundation arranged more deliveries in shorter time by cooperating with aviation companies. Youchange Foundation served medical personnel by making donations of different vehicles. Therefore, it would be successful if combining these strategies together. However, the unfavorable communication with government still existed.

In the reconstruction stage, Nongovernmental Rebuilding Alliance raised large amount of funds for engineering projects, and had great sustainability of using financial resources. In China, two NGOs also took parts in raising funds, for example, Youchange Foundation contributed to build primary school, and One Foundation also made some plans for long-term reconstruction projects. Moreover, NGOs also provided psychological care for survivors. It significantly assisted disaster recovery. However, most of psychological personnel were volunteers without enough professional knowledge. Thus, it is necessary to provide comprehensive recovery for all the individuals suffered from the disaster.

Based on above analysis, NGOs’ success factors and barriers of different stages in disaster relief are listed in Table 3.7.

**Table 3.7 NGOs’ success factors and barriers of different stages in disaster relief**

|  |  |  |
| --- | --- | --- |
|  | Success factors | Barriers |
| Stage 1: Rescue | Update informationTransport goods and personnel in timeMultiple means of transportationOpen various channels of donations of funds and goodsTransparent financial management | Lack of advanced facilities for rescue actionsInformation asymmetry of government regulationsInflexible cooperation between NGOs and governments |
| Stage 2: Relief | Satisfy various demands of life necessitiesBuild distribution centers covering all suffered areasTake part in medical treatments to prevent epidemic diseases | Inefficient allocation of goodsUnfavorable cooperation with governments |
| Stage 3: Reconstruction  | Provide comprehensive psychological care for survivorsRaising funds for long-term reconstruction projects | Insufficient volunteers with professional knowledgeFinancial sustainability of long-term construction |

**Source: own elaboration**

# Chapter 4 Conclusion and Recommendations

## 4.1 Conclusion

The concern from Chinese people regarding the disaster relief of Lushan Earthquake is what sparked the interest of this topic. The aim of this thesis was to identify the success factors and barriers of NGOs’ participation in HL of disaster relief activities in China. Therefore, the main research question for this thesis is as follows:

*How have NGOs influenced humanitarian logistics on disaster relief activities in China?*

Before answering the main question, four sub-questions were answered in the theoretical review. First of all, humanitarian logistics is differed from commercial logistics from four aspects which are motivation, environment, demand, and model used. Next, Chinese NGOs have various duties in three stages of disaster relief which are rescue, relief and reconstruction. They are highly involved in the first two stages - sending rescue personnel and facilities immediately and discovering and satisfying specific demands of suffered people are the major duties of these two stages respectively. Thirdly, three key performance indicators for measuring NGOs’ disaster relief activities are adopted from Balcik and Beamon, which are financial efficiency, mission effectiveness and flexibility.

Furthermore, the last sub-question was answered based on the empirical results, which had achieved the aim of this thesis after comparing NGOs successes and failures in different disaster relief of earthquakes. In general, NGOs win the trust of society by transparent financial management. The success factors for NGOs organizing HL in China are also categorized by different stages. Basically, in the rescue stage, facing to interrupted environment, arranging logistics of goods and personnel for rescuing in multiple ways, and opening various channels for receiving donations can make NGOs successful. On the contrary, the shortage of advanced rescuing facilities and inflexible cooperation with the government are NGOs’ main barriers. In the same way, major success factors of HL in the relief stages are satisfying diversified demands of suffered people, allocating donations reasonably, and taking parts in preventing probable epidemic diseases in the suffered areas; barriers are the same as what has mentioned in the last stage that is inflexible cooperation with the government, which results in inefficient distribution of the goods. In the reconstruction stage, NGOs are successful mainly because they provide of psychological recovery for survivors, and take parts in amounts of long-term reconstruction projects; they also have some obstacles since lack of personnel with professional knowledge.

In addition, it also shows that these NGOs are highly involved in the rescue and relief stages and had limited capacity in the reconstruction stage. Because their effort of transporting relevant personnel and goods was very effective, and thus became the crucial part of relief activities. Meanwhile, they were less contributive because they had no substantial engineering projects in the suffered regions, which was the most critical mission for the survivors.

Based on listed success factors that already achieved in the previous experiences of disaster relief of earthquake, it can be concluded that humanitarian logistics as an important component of disaster relief had been facilitated by NGOs in China. For identified barriers, it is suggested to overcome them in future. Thus, some recommendations about policies and further researches will be given in the next section.

## 4.2 Recommendations

From the analysis of the case studies, only qualitative key performance indicators were applied. Future research might be able to obtain some quantitative performance indicators and an econometrical model for measuring the efficiency and effectiveness of NGOs. Meanwhile, when examining NGOs’ flexibility, only cooperation with government was mentioned. Therefore, it can be also investigated that how NGOs have cooperated with other actors in disaster relief, for example, international organizations.

In addition, policy makers are suggested to overcome the barriers which had reflected in the previous case studies. Government can provide sufficient information about the regulations about participating HL in disaster relief activities of NGOs beforehand, and then give more flexible accesses to NGOs in order to distribute various amounts of goods efficiently in the stages of immediate response. And in the end, government can encourage volunteers to learn professional knowledge of HL and psychological recovery to improve the quality of operating in the reconstruction stage of NGOs.

# Bibliography

Aota, R., & Murosaki, Y. (2004). Study on Essential Requirements for NGOs to Support Victims in Earthquake Disasters. *13th World Conference on Earthquake Engineering.* Vancouver.

Apte, A. (2009). Humanitarian Logistics: A New Field of Research and Action. *Foundations and Trends in Technology, Information and Operations Management*, 1-100.

Balcik, & Beamon. (2008, April). Facility location in humanitarian relief. *International Journal of Logistics: Research and Applications*, pp. 101-121.

Beamon, B. M. (2004). Humanitarian Relief Chains: Issues and Challenges. *Proceedings of the 34th International Conference on Computers and Industrial Engineering* (pp. 1-6). University of Washington.

Beamon, B., & Balcik, B. (2008). Performance measurement in humanitarian relief chains. *International Journal of Public Sector Management, 1*, pp. 4-25.

Cai. (2009, 06). Cooperation between government and NGOs: reflections on the contribution of NGOs to Wenchuan Earthquake rel ief work. *J.of Wuhan Uni.of Sci.& Tech. (Social Science Edition)*, pp. 17-21.

Cox, J., Blackstone, J., & Spencer, M. (1998). *APICS Dictionary (9th ed.).* VA: The APICS Educational and Research Foundation.

Davidson, A. (2006). *Key performance indicators in humanitarian logistics (Master's thesis).*

Demick, B. (2013, 4 20). *China earthquake death toll reaches 156; more than 3,000 hurt*. Retrieved 5 22, 2013, from Los Angeles Times: http://www.latimes.com/news/world/worldnow/la-fg-wn-china-earthquake-death-toll-reaches-156-20130420,0,6802356.story

Ding, W. (2008). Model of Youchange in Mianzhu. *Chinese Enterpreneurs, 11*.

FEMAIS-1. (2010, October 28). *Independent study 1. Emergency Manager: an orientation to the position*. Retrieved June 19, 2013, from The Emergency Management Institute: om http://training.fema.gov/emiweb/is/is1lst.asp

Holguín-Veras, J., Jaller, M., Wassenhove, L. v., Pérez, N., & Wachtendorf, T. (2012). On the unique features of post-disaster humanitarian logistics. *Journal of Operations Management, 30*, 494-506.

Kovacs, G., & Spens, K. (2007). Humanitarian Logistics in Disaster Relief Operations. *International Journal of Physical Distribution & Logistics Management, 2*, pp. 99-114.

Kovacs, G., & Spens, K. (2011). Trends and developments in humanitarian logistics - a gap analysis. *International Journal of Physical Distribution & Logistics Management, 41*(1), pp. 32-45.

Lee, H., & Zbinden, M. (2003). Marrying logistics and technology for effective relief. *Forced Migration Review*, pp. 34-35.

Lei, X. (2008). 240 hours after Sichuan earthquake. *Chinese Entrepreneurs*.

Lewis, D. (2009). *Nongovernmental Organizations, Definition and History.* London School of Economics and Political Science.

Li, Y. (2008). Opportunities for Development of the Voluntary Sector in Japan: With a Focus on the Influence of the Great Hanshin-Awaji Earthquake on Voluntary Organizations. *Chinese Non-Profit Comments*, pp. 59-82.

Li, Z. (2003). Definition and Catogories of NGO in China. *Chinese Business and Administration , 3*.

Liu, B. (2008, May 20). Earthquake Reconstruction: Some Serious Psychological Problems for Children. (163.net, Interviewer)

Lummus, R., Krumwiede, D., & Vokurka, R. (2001). The Relationship of Logistics to Supply Chain Management: Developing a common Industry Definition. *Industrial Management & Data Systems, 101*(8), 426-431.

Luttwak, E. (1971). *A Dictionary of Modern War.* New York: Harper & Row.

McLachlin, R., Larson, P. D., & Khan, S. (2009). Not-for-profit supply chains in interrupted environments. *Management Research News, 32*(22), 1050-1064.

National Governors' Association for Policy Research. (1979). *Comprehensive Emergency Management: A Governor's Guide.* Washington: National Governors' Association.

Poister, T. H. (2003). *Measuring Performance in Public and Nonprofit Organizations.* San Francisco: JOSSEY-BASS.

Qin, P., & Meng, T. (2012). The difficulties and solutions for Chinese NGOs in disaster relief. *Seminar of Chinese Law of Environment and Resource 2012,* (pp. 1202-1207). Chengdu.

Shieh, S. (2010, 04 20). NGOs in mainland of China had continuously challenged in earthquakes. (M. Zhang, Interviewer)

Thomas, A., & Mizushima, M. (2005). Logistics Training: Necessity or Luxury? *Forced Mitigation Review*, 60-61.

Université catholique de Louvain. (2013, May 30). EM-DAT: The OFDA/CRED International Disaster Database. Brussels, Belgium.

Wang, S., & Zhang, B. (2012). *How Taiwan Faced Earthquakes? Discussion After 13 Years of 921*. Retrieved from Feng Huang Taiwan: http://www.ifeng.com.tw/special/taiwandizhen/

Wassenhove, L. v. (2006, May). Humanitarian Aid Logistics: Supply Chain Management in High Gear. *Journal of the Operational Research Society, 57*(5), 475-489.

Xiao, Z., & Fan, A. (2010). A analysis of the function of NGOs in the Sichuan Earthquake. *Legend,* pp. 96-98.

Xiaoxiang Morning Newspaper. (2008, June 17). *Examination of disaster relief of NGO - Taking care of the part that government cannot observe.* Retrieved June 24, 2013, from sohu news: http://news.sohu.com/20080617/n257548812.shtml

Xinhua. (2013, April 21). *Death toll rises to 180 in China quake*. Retrieved 5 23, 2013, from China: http://news.xinhuanet.com/english/china/2013-04/21/c\_132327177.htm

Yang, T. (2008, July 14). *China Review.* Retrieved from Characteristics and inspirations of disaster relief in 921 Earthquake in Taiwan: http://www.china-review.com/cath.asp?id=20263

Youchange China Social Entrepreneur Foundation. (2008, June 15). *The State Council accepted Youchange's donation of vehicles.* Retrieved from Youchange China Social Entrepreneur Foundation: http://www.youcheng.org/pages.aspx?val=1700

Zhao, M. (2011). NGOs' opportunities and developments in the disaster. *Researches of organization management.*