

# Humanitarian Logistics and Its Challenges: The Literature Review

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**Abstract-** This study demonstrates the importance of humanitarian logistics as a field that need an attention by everyone. With the unstable of climate condition, it can be seen that many disasters has happened around the world. The 2011 incidents that strike the develop nation, Japan, has shocked the world and teach every country to be better prepared of any unexpected event. The objective of this study is to highlight the challenges in humanitarian logistics process in meeting the objective relief. From the analysis of secondary data, it was found that the humanitarian logistics study still remains an area that need to be improved from time to time. It also a very important research field that requires attention and support from people, organization and government.

**Keywords**— humanitarian, logistics, challenges,

## 1. Introduction

Humanitarian logistics are the logistics process that being used for humanity operation. Every year, there are approximately 150,000 deaths and 200 million people affected by natural disasters. The 2004 Indian Ocean tsunami, 2005 Hurricane Katrina and South Asia's earthquake, 2010 Haiti's earthquake and 2014 the Typhoon Haiyan in Philippine, are the examples of natural disaster that happened around the world [10], [4]. Disaster at this magnitude force the media to closely monitor how efficient the humanitarian logistics respond. Yet, efficient emergency operations are more complex due to the risks and uncertainty that accompany the disaster. The World Health Organization (WHO) defines a 'disaster' as an occurrence that cause damage, destruction, ecological

loss, human loss and suffering and deterioration of health [7]. Most of the disaster is also striking without prediction and lead to the limited time for mitigation's preparation. Given this background, the objective of this study is to highlight the challenges of humanitarian logistics process, in order to improve the process in the future.

## 2. Literature Review

Despite there are many disasters has happened around the world, it was found that there are a limited number of academic studies and other literature in the field of logistics exist. Ref. [10] defined that humanitarian logistics as the process of planning, implementing and controlling in efficiencies, the storage of goods and material, from the point of origin to the disaster area, with the purpose of alleviating the suffering of disaster's victim.

Humanitarian logistics fundamentally differs than the traditional logistics process as its objective is to provide humanitarian support in the form of medicine, water, food and shelter. Humanitarian logistics also focus on response at search and rescue, sustaining or saving life, and restoring self-sufficiency, even these operations are always impeded by logistical problems, difficulties in humanitarian logistics management, disaster-management policy and over-abundance of financial resources [9]. As described by [12], during the humanitarian logistics, the process that required are:

- Deliver the appropriate supplies of good with good condition
- Coordination and prioritization of the use of limited and share transport
- Storing, staging and moving bulk commodities
- Moving people

- Specific delivery from the outside of the area affected

Ref. [13] indicated that there are four categories of disaster which are Calamities (e.g., earthquake, hurricanes, tornadoes), Destructive actions (e.g., terrorist attack, coups d'état, industrial accidents), Plagues (e.g., famines, droughts, poverty) and Crises (political and refugee crises). Some of the disasters require high logistics cost and some of its also maybe interlinked (e.g., calamity such as the earthquake may also cause plagues such as epidemic diseases). Therefore, it is suggested that in providing the logistic aid, the types of disaster must take account.

### 2.1 Fundamental of Humanitarian Logistics Process

Humanitarian logistics encompasses the process of mobilizing people, resources, skills and knowledge to help the disaster's victim. In humanitarian process, logistics is the central of all the mobilization activity as it served as the bridge between the disaster preparedness and response, procurement and distribution and headquarters and the field. It also can be one of the most expensive parts in the relief operation and the effectiveness of the operation is always being monitored in order to improve the operation and to minimize the operating cost with the maximum of result's operation.

Ref. [11] stated that disaster management is a key factor that drives the successful execution of relief efforts. Disaster management is described as a process that composed of several Stages [3], [1], [6], and [13]. However, the most part that is usually discussed in the literature are Mitigation, Preparation, Response and Reconstruction, which of the disaster management cycle (see Figure 1).

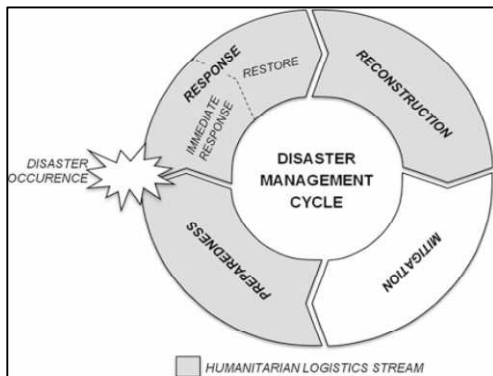


Figure 1: Disaster Management Cycle

The mitigation refers to laws and mechanisms that reduce social vulnerability. Among the issues in mitigation are

the responsibilities of the governments by not involving the direct participation of logisticians.

The preparation refers to various operations that occur before a disaster strikes by incorporating the strategies of implementation, of a successful operational response. This stage is crucial because it is the one in which the physical network design, information and communications technology systems, and the bases for collaboration are developed. The aim of this stage is to avoid the gravest possible consequences of a disaster and the efforts that are made between disasters in learning and adapting from past experiences so as to meet new challenges.

The response refers to the various operations that are instantly implemented after a disaster occurs. There are two main objectives in this stage which are to immediately respond by activating the "silent network" or "temporary networks", and to restore in the shortest time possible the basic services and delivery of goods to the highest possible number of beneficiaries.

The reconstruction stage refers to different operations in the aftermath of a disaster. It involves rehabilitation, and this stage aims to address the problem from a long-term perspective. For example, immediately after a disaster, transportation companies may undergo a modal shift from road to rail that prevails long after the occurrence of the disaster [2].

### 2.2 The Players Involved in Humanitarian Logistic

The players for humanitarian logistics refer to the people or organization that takes part in contributing to the humanitarian logistics process. According to [2], the players in humanitarian logistics can be categorized as governments, the military, aid agencies, donors, non-governmental organizations (NGOs), and private sector companies. All the actors have important responsibilities and task to ensure the humanitarian logistics plan is successful and with the minimum cost. Table 1 below shows the summary of the role for every player in humanitarian logistics and Figure 2 shows the humanitarian relationships model among the players in humanitarian logistics.

Table 1: The summary of players in humanitarian logistics

Player	Role/responsibility
Government	The activators of humanitarian logistics as they have the power to authorize operations and mobilize resources
The military	A very important player since soldiers are called upon to provide primary assistance, for example: hospital and camp installation,

	telecommunications, and route repair
Donors	Those who exclusively give financial means to fund aid operations
NGO	To give the supports to humanitarian operation based on its role; donors, collectors or providers. Donors-give financial in cash to support the operation; collector-collect the financial from customers, employee and suppliers to support the operation; provider- a company that offer its goods and services for free.

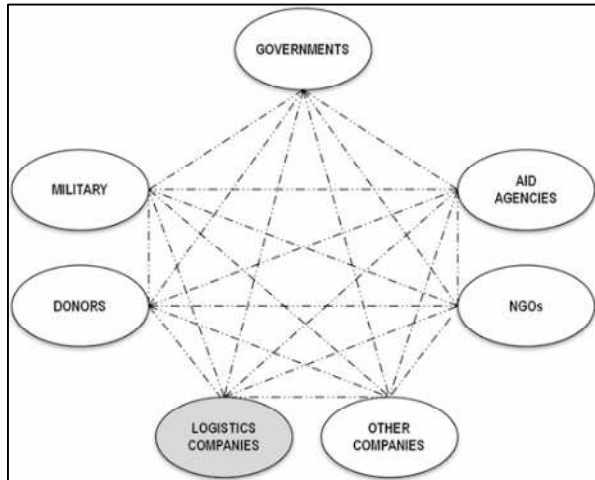


Figure 2: The Humanitarian Logistics model

According to [4], even though there are many players involved in the humanitarian logistics, the flow of the operation still un-smooth as most players face many difficulties. Therefore, humanitarian operation should be planned accordingly to get the maximum response and minimum loss. Ref. [8] identified the following actions that need to be developed for better performance in humanitarian logistics which are transported, storage and handling, distribution and performance evaluation.

### 2.3 Experience of Japan on Humanitarian Logistics’ Challenges: Tohoku Earthquake Case

Japan is one of the country that always strike by the earthquakes. However, the massive earthquake known as Tohoku, coupled with tsunami and the releasing of radiation from the Fukushima Dai-Ichi nuclear power station, remarks as the greatest disaster that strike Japan in 2011.

According to [5], the massive earthquake has hit Japan at 2.46 pm, at the magnitude of 9.00 Richter scale, 80 miles from the coast of Honshu (Japan most populous island). The quake was followed by several aftershocks with a magnitude of 7.4 and many shocks for several weeks. These have led to massive tsunami that swept away cars, buses, ships and even houses. Over 4 million

buildings were damaged, cut off the waters and electricity, and damage the roads, ports and bridges. A 28,000 people were also estimated of dead or missing. In addition to the destruction, the breach of container vessel that contains nuclear, released radiation on air, ground and water, which requiring the mass evacuation of the local residents [14].

Based on the history, Japan should not have any problems in managing the humanitarian logistics as it is advanced and technologically-enabled nation. However, the 2011 incident shows that Japan’s disaster response management has failed because of systematic weaknesses. Their people, therefore, are seeking of answer why the governments’ response capability is ineffective and what are the factors that render the ineffective when comes to the reality of actual disaster management.

The Kyoto news report that among the failure of Japan disaster management are from lack of political leadership, delayed response of the government to the disaster, ineffectiveness of non-government to the disaster, constrains in military and inefficient communication system [5].

### 3 Methodology: Secondary Data

The authors refer to the secondary data that being published by online journal and articles to prepare this study. The selected journal and articles prior to humanitarian logistics and its challenges during deliver the efficiency helps, identified the root cause for the inefficiency of humanitarian process. The findings, therefore, can strengthen the need for further study in humanitarian logistics operation in order to improve the current process.

### 4 Discussion

The 2011 incidents has taught Japan to be better prepared in the future. Systematic failures in humanitarian logistics can be resolved if there is effective leadership and appropriate level of supports and funding as Japan have the technology, financial, administrative and military resources. The lesson that learns by Japan from the 2011 incidents also a lesson to the world that anything can happen in a blink of an eye. It is just a matter of preparedness.

### 5 Conclusion

From the analysis of secondary data, it can be concluded that the humanitarian logistics process still remains an operation that need to be studied and improved day by day. It’s also a very important research field that requires

attention and support from people, organization and government. Humanitarian logistics have the opportunity to increase its contribution to the disaster relief by improving the areas of knowledge management, technology, measurement, community and voice. While moving relief items to disaster sites will continue to be an important role for logistics, providing timely information, meaning that information to the garner insight and learning internally with the others must be the strategic focus. This paper therefore, unlock the of humanitarian logistics process from the prospect of researchers.

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