

DISSERTATION REPORT

“Role of Humanitarian Logistics in Uttarakhand Disaster”

**Dissertation submitted to College of Management & Economic Studies for the partial
Fulfillment of the degree of Masters in Business Administrations**

MBA (Logistics & Supply Chain Management)

Guided by:

Dr. Saurabh Tiwari

Prof. Logistics and Supply Chain College of
Management & Economic Studies
University of Petroleum & Energy Studies
Dehradun – 248 006

Submitted by:

Ankit Kumar

Enrollment No: R600213009

SAP ID: 500026906



**College of Management and Economic Studies
University of Petroleum and Energy Studies,
Dehradun, Uttarakhand, India**

April, 2015

CERTIFICATE OF ORIGINALITY

I hereby declare this report entitled “**Role of Humanitarian Logistics in Uttarakhand Disaster**” submitted in partial fulfillment for the **Degree of Master in Business Administration (Logistics and Supply Chain Management)** from **University of Petroleum and Energy Studies** is the result of my work carried out by me under the guidance of Dr. Saurabh Tiwari (Industry Fellow- Logistics and Supply Chain Management), University of Petroleum and Energy Studies, Dehradun.

I further declare that this is my original work and has not been previously submitted to this or any other university for any other degree or diploma.

Name: Ankit Kumar

Date: __/__/__

Enrollment No.: R600213009

Place: Dehradun, Uttarakhand

DECLARATION

This to certify that the project titled “**Role of Humanitarian Logistics in Uttarakhand Disaster**” submitted to University of Petroleum & Energy Studies, Dehradun, by **Ankit Kumar** in partial fulfillment of the requirement for the award of degree of Masters of Business Administration (Logistics & Supply Chain Management), is a bonafide work carried out by him under my supervision and guidance. This work has not been submitted elsewhere for any other degree. He has made an earnest and dedicated effort to the best of my knowledge to complete this project.

I wish him all the best for his future endeavor

Dr. Saurabh Tiwari

Professor – Logistics and Supply Chain Management

University of Petroleum & Energy Studies, Dehradun

(U.K.)

ACKNOWLEDGEMENT

I acknowledge my gratitude with sense of veneration to the almighty God and my parents who supported me at each stage of the project and helped me to remain motivated and dedicated throughout this project.

I owe a debt of gratitude to my mentor **Dr. Saurabh Tiwari**, who despite his busy schedule guided me in this project, provided valuable suggestions and shared his experience which really helped me in analyzing various aspects of this project.

I feel extremely grateful to all the working professionals who gave responses to my questionnaire. Last but not the least, sincere thanks to all those who directly or indirectly helped me in the completion of my project.

EXECUTIVE SUMMARY

The background of the report is to study the overall scenario of the disaster that attacked one of the very beautiful places in India where not only Indians but people from rest of the world also come for the pilgrims.

The focus of this report is to have constructive and continuous, updated and tested preparedness plans and extremely quick, efficient and coordinated response and recovery plans at all level (Panchayat levels to state level) which ensures maximum community participation in disaster mitigation 10 activities also to ensure that Disaster Management receives the highest priority for promoting a culture of prevention and preparedness for disasters in Uttarakhand.

Uttarakhand has a total area of 53, 484 km² of which 93% is mountainous and 64% is covered by forest. Most of the Uttarakhand part of the state is covered by high Himalayan peaks and glaciers. Two of India's largest rivers, the Ganges and the Yamuna, originate in the glaciers of Uttarakhand.

Uttarakhand is popular for 'Char Dham':-

- 1) Kedarnath
- 2) Badrinath
- 3) Gangotri
- 4) Yamunotri

It is also commonly known as the "Land of the Gods".

From 15 to 18 June 2013, Indian state of Uttarakhand and adjoining area received heavy rainfall, which was about 375 percent more than the benchmark rainfall during a normal monsoon. The massive rainfall and cloud burst events were happening at multiple places, including in Bhagirathi basin, Assai-ganga basin, Mandakini Basin, Badrinath region, other places in Alaknanda region from 15 June 2013 to around 18 June 2013. This lead to melting of Chora-bari Glacier at the height of 3800 meters, and eruption of the Mandakini River which led to heavy floods near Kedar Dome, Rudra-prayag district, Uttarakhand, Himachal Pradesh. This disaster is considered to be the largest natural disaster after tsunami occurred in 2004

Uttarakhand along with Himachal and adjoining areas has been hit by torrential rain, landslides and flash floods. The erratic weather conditions have been attributed to early monsoons in Northern India due to which early warnings were not provided and people have been affected adversely. River Ganges and its major tributaries of Alaknanda and Bhagirathi have swelled up,

causing widespread destruction downstream. Kinnaur district in Himachal Pradesh, has received the highest rainfall in 20 years over the last three days.

This disaster led to a huge loss of both human and economy. Some of the losses are as follows:

1) Human loss: -

- i) According to the official records 400 houses were destroyed and 265 were damaged
- ii) 4,200 villages were victims of the floods
- iii) 6,000 people died, 10,000 were injured and 1, 00,000 were stuck in the valley.
- iv) Landslides, due to the floods, damaged several houses and structures, killing those who were trapped Over 70,000 people were stuck.

2) Economic loss: -

- i) Major roads, telephone towers were destroyed due to which communication with the outer world was lost.
- ii) 20,000 crores loss was reported, which may be in the form of destruction of houses roads, cars etc.
- iii) Tourism constitutes about 30% of the state's income which was lost
- iv) All the shops and hotels were destroyed and all roads were broken.

Causes of the disaster: -

- i) Melting of glaciers, because of global warming has been of the reasons. Pollution and global warming accounted for the melting of glaciers
- ii) Violation of environmental laws and deforestation has also accounted for floods.
- iii) Building of hydro-electricity plants and increase in the infrastructural facilities has weakened the mountain causing land slide.
- iv) Ecologists point out that the huge expansion of hydro-power projects and construction of roads to cope with the lakhs of tourists in Uttarakhand and Himachal Pradesh has compounded the scale of the disaster
- v) Currently 70 dams exist in the Char-dham area alone. The dam constructions involve blasting of hills which increase the risk of land slides.
- vi) More than 220 power and mining projects are running in 14 river valleys in Uttarakhand.
- vii) Several rivers are being diverted through tunnels for these projects leading to major disasters in the state

Table of Content

S.No.	Content	Page No.
1.	Certificate of Originality.....	3
2.	Declaration.....	3
3.	Acknowledgement.....	4
4.	Executive Summary.....	5-6
5.	Table of Content.....	7
6.	List of Tables & Figures.....	8
7.	List of Abbreviations.....	9
8.	Research Methodology.....	10-12
9.	Literature Review.....	13
10.	Chapter 1.....	14-18
	i) Introduction & Overview	
	ii) Health infrastructure in UK	
	iii) Housing category in UK	
11.	Chapter 2.....	21-27
	i) Introduction to HL	
	ii) HL & Stages in Emergency SC	
	iii) HL Players Involved	
12.	Chapter 3.....	28-32
	i) Past records Disaster in India	
13.	Chapter 4.....	33-35
	i) Origin	
	ii) Consequences	
14.	Chapter 5.....	36-41
	i) Role of govt.	
	ii) Role of rescue operations	
15.	Recommendations.....	42-46
	i) Role of Media	
	ii) Hospital and Medical Preparedness	
16.	References.....	47
17.	Plagiarism Test Report.....	48

LIST OF TABLES & FIGURES

S.No.	Contents	Page No.
1	Map of Uttarakhand	12
2	Medical & Health Institute in UK	14
3	Types of Houses	16
4	Cloudburst in UK	16
5	Landslides in UK	17
6	HL Stream	21
7	HL Players	22

TABLE OF ABBREVIATIONS

- 1) HL- Humanitarian Logistics
- 2) NIDM- National Institute of Disaster Management
- 3) ITBP- Indo-Tibetan Border Police
- 4) IAF- Indian Air Force
- 5) NDRF- Natural Disaster Response Force

RESEARCH METHODOLOGY

BACKGROUND OF THE PROBLEM: -

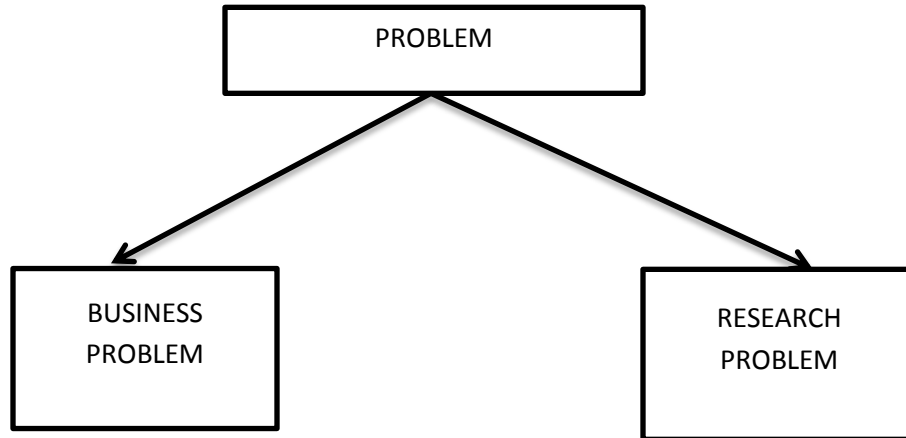
- Between 2003 and 2013, the number of visitors to the state rose nearly 200 percent to 30.3 million.
- With major Hindu shrines located in the state, about 70 percent of the tourists who visit the state visit religious sites.
- Flood attack in Uttarakhand affected the life of around 1 lakh people of which 6000 died and more than 10000 were injured.
- 400 houses destroyed and 265 were damaged. Around 4200 villages were affected.

MOTIVATION OF THE RESEARCHER: -

- Since, these kind of disaster happen every year and results in a huge loss, therefore it motivates me contribute something which can reduce this losses.
- The role played by the Indian Army, IAF, Indian Navy etc. during the disaster is a motivating factor for me

RESEARCH GAP:

- No prior research has been done that could study the gap of communication between the weather forecaster and state govt.



Business Problem: -

- Gap of communication between the govt. and the weather forecaster.

Research Problem: -

- How can the gap of communication be removed or make it less in case of any disaster alert?

OBJECTIVE OF THE RESEARCH: -

- To find out the reasons that could be responsible for the lack of communication during the disasters.
- To highlight the role of govt. and other corporate bodies in the rescue operation “RAHAT”.

LITERATURE REVIEW

AUTHOR	YEAR	CONTEXT	PARAMETERS
Kunz N. (2012)	2012	Meta-analysis on HL research	Focuses on various parameters that will help in reducing losses in the disasters
Kumar et al. (2012)	2012	India Disaster Report 2011	Focuses on the disasters caused by nature and also man-made disasters like 9/11, Gujarat Earthquakes. Tsunami etc.
Costa et al. (2012)	2012	Role of infrastructure in logistics activities	How to construct the buildings in order to face fewer consequences in these disasters.
Kovacs & Spens (2009)	2009	Challenges in HL	Focuses on the basic challenges on HL
Howden M. (2009)	2009	Role of Information in HL	Highlights the major challenges during the disaster i.e. flow of information's.
Beamon & Balcik (2008)	2008	Performance measurement in HL	Measuring the overall parameters for helping the people who are struck in the disasters.
Kovacs & Spens (2007)	2007	Role of HL in Disaster relief	Role of Defence like India Army, IAF, ITBP etc.
Yan Wassenhove (2006)	2006	Humanitarian Aid Logistics	Role of NDRF in disasters
Thomas & Copczak (2005)	2005	Role of HL training	Focusing on the basic trainings that people should get in the areas where these disasters often happens and focusing on various training to be given to the India Army, Indian Navy etc.
Sinha AK (2001)	2001	Report on Gujarat Earthquake	Focuses on various mistakes that led to huge human and economic losses.

CHAPTER 1

INTRODUCTION & OVERVIEW

INTRODUCTION TO UTTARAKHAND

Uttarakhand is situated on the southern slope of the Himalayas. The climate and vegetation of different cities of this state vary with the height of its location. Glaciers are located at the highest elevations. However, there are dense forests at the lower elevations. The Western Himalayas between 3000-3500 meters are covered with Alpine Shrub and Meadows. Two of India's most important rivers, the Ganges and the Yamuna flow from the glaciers of Uttarakhand. There are also several other lakes and streams in the region. Uttarakhand is divided into two parts, the western half known as Garhwal and the eastern region as Kumaon.

Demographic & Socio-economic Profile: -

As per census, the state has a population of 101 million with average density of 189 persons per sq. km.

Geographical Area: 53,483 sq. km (93% is mountainous and 64% is covered by Forest)
Uttarakhand is the 27th state of the Republic of India. The State has 2 Divisions i.e. Garhwal and Kumaon. It has 13 Districts and Dehradun is the capital city. Uttarakhand consists of 13 districts (figure-I). i.e., Almora, Pauri Garhwal, Tehri Garhwal, Bageshwar, Chamoli, Haridwar, Champawat, Nainital, Dehradun, Udham Singh Nagar, Uttarakashi, Pithoragarh, Rudra-prayag.



Figure-I The state is having 78 Tehsils, 6 Up-Tehsils, 95 blocks and 7541 Gram/nay Panchayat. The state has a total of 16,826 villages, 86 cities/towns, 01 Nagar Nigam, 32 Nagar Palika Parishad, 30 Nagar Panchayat, 09 Cantonment, 06 Development Authority and only five are major cities with population over 1 lakh. It has 5 Lok-Sabha, 3 Rajya-Sabha constituencies and 70 Vidhan Sabha constituencies.

Geology: -

The Uttarakhand Himalayas is divided into following regions:

- Trans Himalayas
- Higher Himalayas
- Lower Himalayas
- Shivalik Himalayas
- Bhavar & Tarai

Climate: -

The state has two distinct climatic regions: mainly the hills and the relatively smaller plain region. The climatic condition of the plain region is very similar to plains. The hilly region has cold winters with snowfall for quite a long time, good rainfall in the monsoon, and mild summers. This climate attracts tourists for simply scenic beauty, adventure or even looking for a spiritual environment.

1.5 Rainfall

The State is bestowed with a relatively high average annual rainfall of 1229mm.

Normally rain starts in the State in late April and continues up to September. However, the intensity of rainfall increases during the months of June to September. Higher rainfall occurs during first week of July. Rain continues through August until the first week of September.

Temperature: -

Summers are extremely hot with temperatures going above the 40°C mark and with a lot of humidity. Winters can be very cold with temperatures going below 5°C. The lowest temperature recorded is -5 to -7°C and highest is between 40 to 45°C.

Health Infrastructure of Uttarakhand

The Government of Uttarakhand is committed to improve the health status and quality of life of its people, by focusing on health issues. Its main objective is to reduce disease burden, creating a healthy environment. The Government intends to reach the population stability with due attention to disadvantaged sections, inaccessible and remote areas. It is the first state in India to adopt an integrated Health and population policy. The table gives the Medical & Health Institutions as given below.

Table 1.1: Medical & Health Institutions

S.No.	Allopathic Hospitals/Dispensaries	Year (2009-10)
1	District Hospital	12
2	District Hospital (Female)	7
3	Base Hospitals	03
4	Primary Health Centre	42
5	Additional Primary Health Centre	208
6	State Allopathic Dispensaries	322
7	Community Health Centre	55
8	Dist./Tehsil Maternity Centre	24
9	Health Posts	09
10	Beds in Govt. Hospitals	8075
11	Combined/Female Hospital	39

Housing Category in Uttarakhand:

A systematic study for the whole country has been taken up by Building Materials Technology Promotion Council in the form of the Vulnerability Atlas. One of the important aspects of Vulnerability Atlas is 'housing vulnerability tables' Taking guidance from this work, the types of housing, as existing in each district has been taken from the Census of 40 India, 1991 and categorized from vulnerability consideration. The housing infrastructure and its vulnerability to hazard have been categorically analyzed in this table. The vulnerability atlas has tabular details of the house types, risk of damage to house types, damage risk levels for earthquakes, floods. Hence given the intensity of hazard one can analyze the effect of the same on housing infrastructure for the state of Uttarakhand (Figures of Vulnerability of houses in the State given in the Annexure)

Quality and design specifications of houses as well as materials used for housing, particularly for roofing and walling, have a bearing on the vulnerability of houses to earthquakes, landslides, floods and fires. The buildings/house types in the State, for which Census has been done, are 2,566,282 as given in the Table.

In The Housing category - Wall Types

Consists of 56% (Mud, Un-burnt Brick Wall and Stone Wall), 37.9% Burnt Brick Walls, 2.1% concrete and wood wall and 4.0% Walls are of Other Materials.

Where (Mud, Un-burnt Brick Wall and Stone Wall) - Category A (Burnt Brick Walls) - Category B

These two category houses are vulnerable & likely to get severe damage including collapse in moderate intensity of earthquakes. The concrete and wood frame houses placed in Category C account for 2.1% and prove to be much better with only a few collapses.

In The Housing category - Roof Types

Consists of 19.2% (Light Weight Sloping Roof), 18.3% (Heavy Weight Sloping Roof) 62.5% are Flat Roofs.

Wall Types	No. of Houses	% of House
Mud, un-burnt brick wall & stone wall	1437439	56%
Burnt Brick Wall	972348	37.9%
The concerto and wood frame houses	54750	2.1%
Other category houses	101745	4%
Total Vulnerable Houses	2409787	93.9%
Total No. of Houses	2566282	100%
TOTAL AFFECTED HOUSES	409823	15.96%

Previous disasters in Uttarakhand: -

In Uttarakhand, the disasters like cloudburst and landslide has become a common problem in last 30-35 years. More than 10000 human loss and more than 2500000 of economic losses has been seen by Uttarakhand. If we look at the past few years' record, Pithoragarh, Khetgaon and Tehri is the major attacked place by Cloudburst and Landslide. Almost every year the state is affected by one or more major landslides affecting the society in many ways. Loss of life, damage of houses, roads, means of communication, agricultural land, are some of the major consequences of landslides in Uttarakhand. For this, the state is affected as because there is no other means of transport except roads. The table given below is the detail of some disaster faced by Uttarakhand by Cloudburst and Landslide in the state.

Cloudburst cases in Uttarakhand		
Year	Area	Human loss
2002	Khetgaon (Pithoragarh)	4
2004	Ranikhet (Almora)	10
2007	Pithoragarh & Chaamoli	23
2008	Pithoragarh	10
2009	Munisyari (Pithoragarh)	43
2010	Kapkot	36 (including 18 school Children)

Landslide cases in Uttarakhand		
Year	Area	Human loss
1979	Okhimath	39
1986	Tehri & Chaamoli	32
1998	Okhimath	109
1998	Malp (Pithoragarh)	300+
2002	Khetgaon	28
2004	Jakholi (Tehri)	32
2008	Amru Band	17
2009	La Jhakela	43

CHAPTER-2
INTRODUCTION TO HUMANITARIAN LOGISTICS

INTRODUCTION TO HUMANITARIAN LOGISTICS

What Is Humanitarian Logistics: -

Humanitarian logistics is a branch of logistics which specializes in organizing the delivery and warehousing of supplies during natural disasters or complex emergencies to the affected area and people. Although they have been mostly utilized in commercial supply chain, logistics is one of the most important tools now in disaster relief operations. Type and quantity of the resources, way of procurement and storage of the supplies, tools of tracking and means transportation to the stricken area, specialization of teams participating in the operation and plan of cooperation between these teams, are some important issues that are connected directly to humanitarian logistics.

Developing logistics warehousing to store all essential goods is one of the tools utilized in disaster response planning. Warehouses should be designed by taking precautions for contamination or waste of materials and organized in order to facilitate deliveries to the desired area at the desired time and quantities. Successful humanitarian operations also presuppose that distribution centers are located in the correct area, which is obviously near the region that tends to be hit by a disaster and can be indicated through software or mathematical models. The responsible authorities aim at maximization of response and minimization of distribution time, money spent and number of distribution centers. Coordination of the delivery of goods, organization of teams, supplies and equipment movement is realized by mobilization centers, which are located near the affected region. A way of taking precautions before a disaster occurs, is to organize emergency response plans which will help preparation and consequently mobilization in the time of the disaster.

A logistical technique which can improve responsiveness is inventory pre-positioning. This technique is used for estimating item quantities required according to specific safety stock levels and order frequency, or for searching optimal locations for warehouses using facility location. Logistics is one of the major tools of disaster preparedness, among surveillance, rehearsal, warning, and hazard analysis. Besides, success and performance in humanitarian relief chains is very difficult to measure because of some distinct characteristics that humanitarian operations have, such as very unpredictable demand, difficulty to obtain data from operations, unpredictable working environment, lack of incentive for measurement (due to their non-profit character), very short lead time and unknown variables, like geography, political situation or weather.

Technology is a key factor to achieve better results in disaster logistics. Implementing up-to-date information or tracking systems and using humanitarian logistics software which can provide real-time supply chain information, organizations can enhance decision making, increase the quickness of the relief operations and achieve better coordination of the relief effort. Biometrics for identifying persons or unauthorized substances, wireless telecommunications, media technology for promoting donations, and medical technologies are some more aspects of technology applied in humanitarian operations.

HUMANITARIAN LOGISTICS AND STAGES IN THE EMERGENCY SUPPLY CHAIN

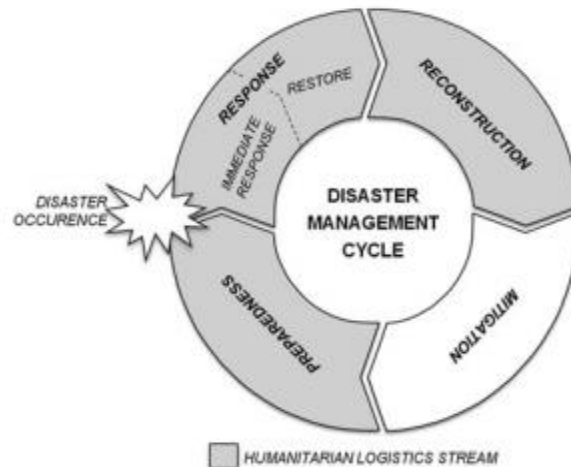
Since disaster relief efforts are characterized by considerable uncertainty and complexity, they need to be properly managed in order to address and implement better responses. Thus, disaster management is a key factor that drives successful execution of relief efforts, and it begins with strategic process design (Thomasine and van wassenhove 2009).

Disaster management is often described as a process composed of several stages, even though there is disagreement among authors as to the structure and nomenclature of the stages (Kovacs and Spens 2007, 2009; altay and green 2006; Pettit and Beresford 2005; van wassenhove 2006; lee and Zbinden 2003; Thomas 2003; Cottrill 2002; Nisha de Silva 2001; long 1997). However, for the most part, the literature concurs on the existence of the following phases:

- Mitigation;
- Preparation;
- Response;
- Reconstruction.

These four phases constitute the disaster management cycle. With the focus on logistics and supply chain management, the process that involves logisticians mainly concerns the preparation, response and reconstruction; together these constitute humanitarian logistics stream

The mitigation phase refers to laws and mechanisms that reduce social vulnerability. These are issues that relate to the responsibilities of governments and do not involve the direct participation of logisticians.



The preparation phase refers to various operations that occur during the period before a disaster strikes. This phase incorporates the strategies put into place that allow the implementation of a successful operational response. This phase 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. This phase also incorporates the efforts that are made between disasters in learning and adapting from past experiences so as to meet new challenges.

The response phase refers to the various operations that are instantly implemented after a disaster occurs. This phase has two main objectives; they are consecutive and constitute two sub-phases: -

- The first objective is to immediately respond by activating the “silent network” or “temporary networks,”
- The second objective is to restore in the shortest time possible the basic services and delivery of goods to the highest possible number of beneficiaries

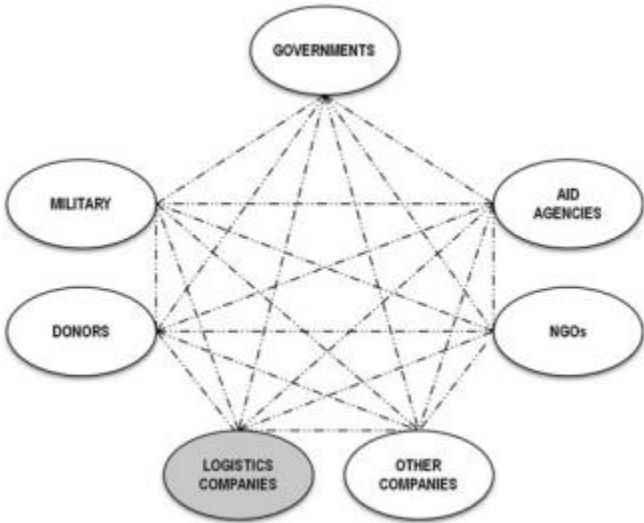
In the response stage, coordination and collaboration among all the actors involved in the humanitarian emergency deserve particular attention. Connections to feasible donors, suppliers, NGOs, and other partners are made in the first phase, but they are not activated until the catastrophic event takes place. Then, all the actors involved operate as quickly as possible: at the start, speed—at any cost—is of the essence, and the first 72 h are crucial (Van Wassenhove 2006).

The reconstruction phase refers to different operations in the aftermath of a disaster. It involves rehabilitation, and this phase aims to address the problem from a long-term perspective. The effects of a disaster can continue for a long period of time, and they have severe consequences on the affected population. In addition, disasters can also have long-term effects on the management of companies. 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.

With regard to humanitarian logistics stream, it is interesting that the transition between the stages involves the shift in focus from speed to cost reduction in terms of operational performance. Each stage of the process has a specific objective that can be achieved through the application of two supply chain principles: agility and leanness.

Humanitarian Logistics and the Players Involved

Humanitarian relief-operation management engages very different players, who may have a high degree of heterogeneity in terms of culture, purposes, interests, mandates, capacity, and logistics expertise (Balcik et al. 2010). Key players can be categorized as follow: governments, the military, aid agencies, donors, non-governmental organizations (NGOs), and private sector companies—among which logistics service providers are preeminent (Kovács and Spens 2007; Kaatrud et al. 2003). Considering the whole players and relationships among them, the humanitarian relationships model can be defined.



Governments—host governments, neighboring country governments, and other country governments within the international community—are the activators of humanitarian logistics stream after a disaster strikes since they have the power to authorize operations and mobilize resources. In fact, without the host government authorization, no other player—with the exception of national aid agencies and the military—can operate in the disaster theater. Host government authorization is fundamental for the involvement of other countries (neighbors or not). The engagement of other countries is a delicate matter since it can be facilitated or blocked as a consequence of the relationship quality between the host government and the international community (in many cases host countries do not enjoy good relations with their neighbors). Another important role in the aid process can be played by international agreements, to which the host government subscribes with other countries (e.g., the European Union, North American Free Trade Agreement, Asia–Pacific Economic Cooperation, Arab League, and African Union). Moreover, host governments have the responsibility to put into place protocols and take action to reduce the probability of disasters (mitigation).

On many occasions, the military has been a very important actor since soldiers are called upon to provide primary assistance (i.e., hospital and camp installation, telecommunications, and route repair) thanks to their high planning and logistic capabilities.

Aid agencies are actors through which governments are able to alleviate the suffering caused by disasters. The largest agencies are global actors, but there are also many small regional and country-specific aid agencies. One of the most important for its logistic role and contribution is the WFP.

Donors provide the bulk of funding for major relief activities. Generally, donations consist of giving financial means (in-cash donations) to support humanitarian operations or providing goods and/or services for free (in-kind donations) while performing logistics operations. Since each player within its own specific role can provide in-kind donations, in the humanitarian relationship model the term “donor” refers to those who exclusively give financial means to fund aid operations. Thus, in addition to country-specific funding provided by governments in recent years, foundations, individual donors, and companies have become important sources of funds for aid agencies.

NGOs include several and disparate actors, ranging from influential and international players, such as CARE (a leading humanitarian organization fighting global poverty), to small and micro-organizations that develop within local communities but are also able to operate at the international level. Some of these players are temporary, being created just to address one particular crisis. The presence of private-sector companies (logistics and others companies) is increasingly growing in the humanitarian relief environment. In the humanitarian logistics, companies can play one or more of the following roles:

- Donors;
- Collectors;
- Providers.

As a donor, a company can support humanitarian logistics by giving financial contributions (in cash) to fund aid operations. As a collector, a company can gather financial means from its customers, its employees, and its suppliers in order to fund aid operations. As a provider, a company can offer its goods and services for free (in-kind donation) or as a consequence of a selling action. In the humanitarian relationship model, when a company exclusively plays the role of donor and/or collector, it simply belongs to the donor's category. The model refers to the company category only when the organization in question acts only or also as a provider.

Companies are capable of providing technological support and logistics staff and managers. They also provide specific services that may no longer be available on the ground immediately after a disaster has occurred, such as electricity supply, engineering solutions, banking support, and postal services. Initially, companies are moved to participate in humanitarian efforts because they have observed that enormous losses are inflicted when disasters interrupt the flow of their business; so they invest in re-establishing their business continuity. Working to alleviate the economic impact of such disruptions "makes good business sense" (Thomas and Fritz 2006).

Within the company category, logistics service providers are excellent contributors at each stage of a disaster-relief operation through their logistics and supply chain management core capabilities. Leading international logistics service providers, such as Agility, DHL, FedEx, Maersk, TNT, and UPS, have raised their importance in terms of the resources, assets, and knowledge shared with their humanitarian counterparts. Thanks to their capabilities in enhancing the speed and efficiency of relief efforts, logistics companies are assuming a more prominent role as the partners of humanitarian organizations.

CHAPTER-3
PAST RECORDS OF DISASTER IN INDIA

PAST RECORDS OF THESE DISASTER IN INDIA

- 1) **Bengal Famine of 1770:** - Bengal under the rule of British East India Company endured the most catastrophic famine between 1769 and 1773. The famine also included some regions of Bihar and Orissa, but Bengal was the worst affected region. The population in Bengal was reduced to 30 million with death of one-third of its population. In 1768 there was deficit in agricultural produce, which was nothing out of ordinary. The following year the same trend continued, but on a more severe scale. In September of 1769 there was severe drought leading to even more shortage of food. By mid-1770 death from starvation was occurring on a large scale. The famine resulted in mass migration of surviving population towards jungles, who never returned for decades to come. The famine is also attributed in large part to rampant policies of British East India Company. After the lands of Bengal came under Company's rule, land tax was raised five folds from 10% over to 50%. Company also forced farmers to cultivate opium for exports and forbid hoarding of rice resulting in no reserves to tide over the famine. By the end of 1770 there was good rainfall resulting in good harvest, but there were shortages in the following years thereby raising the death toll.

- 2) **Third Plague Pandemic:** - There is a folktale in India that once an unknown disease gripped India and in rural areas, the casualties were so severe that there weren't enough people left alive to bury or burn the dead. Well, the story is true. The pandemic was worldwide and is infamously known as third plague pandemic. The bubonic plague began in Yunnan province of China in 1855. The plague came to India in 1894. The outbreak was sudden and had an incubation period of 4.5 to 6 days and on the onset of symptoms those infected had high fever often accompanied by delirium. Soon they had swollen glands and death occurred at the end of 48 hours from the onset of symptoms. The epidemic was initially reported in port cities of Mumbai, Karachi, Pune and Kolkata. By 1899, the disease had spread to other parts of India and rural communities. In Kolkata, 34,000 deaths were reported in a single week. English government took drastic steps to eradicate the disease by burning whole sections of towns and segregating the inhabitants from the infected patients. About 90% of those infected were dead. As the plague spread to famine-stricken districts, things went from bad to worse. By 1900, Chennai came under the purview of plague and by early 20th century, most of the world was infected. Over the next 30 years, over 1.2 crore deaths were officially reported in India.

- 3) **Great Famine of 1876-78:** - There were two most notable famines in the 19th century, in 1870s and 1890s in India. The estimated death toll from the great famine of 1876 to 1878 is estimated to be anywhere between 50 lakhs to 80 lakhs officially, but George Monbiot claimed the estimates to be between 1.2 crore to 3 crore. It is also known as the Madras famine of 1877. Intense drought had resulted in shortfall of crops in the Deccan Plateau. Also British Government's policy to cultivate cash crops and excessive export of food grains is blamed as the reason behind the famine. By the autumn and winter of 1878, an epidemic of malaria struck killing people who were already weakened by malnutrition. The excessive mortality in the famine neutralized the natural population growth in the Bombay and Madras. The famine became a cornerstone of economic critique of British rule by many Indian nationalists, who later went on to establish Indian National Congress.
- 4) **Deccan Famine of 1630–1632:** - The Deccan Famine was the result of failure of three consecutive staple crops leading to intense hunger and death from starvation. In the fourth and fifth years of reign of Shah-Jahhan, the famine desolated Deccan and Gujarat. Abdul Hamid Lahori described the horrors of the calamity as, "the inhabitants were reduced to direct extremity. Life was offered for a loaf of bread, but none would buy. Rank was sold for a cake, but none cared for it. Dog's flesh was sold as goat's flesh. Men began to devour each other." So great was the distinction that streets and lanes became full of corpses and there was nobody to remove them. Shah Jahhan distributed about 1.5 lakh Rupees in charity, established a few soup kitchens and remitted taxes to the amount of 70 lakhs, but his relief measures were inadequate. By 1632 about 20 lakh Indians died from the effects of famine.
- 5) **Bengal Famine of 1943:** -A catastrophic famine struck the undivided Bengal in 1943. Bengal previously had seen several famines under British rule, but this was considered the second worst famine to strike Bengal province. Unlike the previous Bengal famines, highest mortality was not in the poor groups of the society, but among artisans and small traders whose income vanished when people spent all their savings on food and did not employ artisans. A series of crop failure caused localized famines in 1940-41. Burma was previously the largest exporter of rice to India and a significant portion of it was to Bengal. After the Japanese occupation of Burma during World War 2, rice exports to India became nil. Democratically elected provincial governments and public servants

of Indian Civil Service considered that Bengal had plenty of food, which could be made available with good administration. It was also claimed that traders hoarded rice to make speculative profits. Imports from Australia and North America were hard to bring in due to the war. In fact, London had turned a bad food shortage into a massive killing famine through its wartime policies.

- 6) **1839 Coringa Cyclone:** - On November 25, 1839, an enormous cyclone caused a 40-foot storm surge that hit the ancient city of Coringa in present Andhra Pradesh. The cyclone wiped out the harbor city, destroyed 25,000 ships and vessels in its bay, and killed 3,00,000 people. Survivors never entirely rebuilt the city. City of Coringa was known for ship building and repairing. From Coringa harbor a wide range of goods were exported to Southeast Asian countries and ships from United Kingdom, France, Netherlands and Portugal were repaired. This was not the first famine to strike Coringa. Previously in 1789, a cyclone hit Coringa killing 20,000 people. The term 'cyclone' is said to be coined by Henry Paddington, East India Company's scientist to describe the devastation caused by the storm of 1789 in Coringa.

- 7) **1737 Calcutta Cyclone:** - In the month of October in 1737, Calcutta witnessed one of the worst cyclones in the recorded history of India. Hurricane force winds were reported to be accompanied by an earthquake and extensive flooding with an estimated death toll of 3, 00,000. The absence of evidence for soil liquefaction suggests that perhaps no substantial earthquake occurred. It should be noted that the population of Calcutta at that time was around 3,000 to 20,000. The fatalities estimated in London and French journals exceeded the official report of greater than 3000. Although official reports discussed only the damage in Calcutta, it is possible that the 3, 00,000 estimated fatalities included those in coastal villages in what is now West Bengal and Bangladesh. It is evident that the large number of fatalities was caused by widespread flooding. The cyclone also destroyed nearly 20,000 ships.

- 8) **2001 Gujarat Earthquake:** - On January 26, 2001 when India was celebrating 51st Republic Day, disaster struck in Kutch district of Gujarat. An earthquake with a magnitude of 7.7 on Richter scale hit at about 08:46 a.m. Around 20,000 people were killed, 1, 67,000 injured and about 6, 00,000 people were left homeless. The city of Bhuj that lied only 20 km from the epicenter was totally devastated. Total damages were assessed to be in excess of \$5.5 billion. Indian military was called in for rescue and relief

efforts. Due to intense international media coverage, relief poured in from all over the world and as a result the affected towns and villages now have better hospitals and schools than before. An interesting event that emerged from this horrendous disaster was the emergence of a river in the dry land of Kutch that ran along a great length, but later dried up in the following summer.

9) **1993 Latur Earthquake:** - On September 30, 1993 an earthquake measuring 7.4 on Richter scale struck at 4 a.m. in Maharashtra. The worst affected districts were Latur and Osman Abad. Approximately 20,000 people died and around 30,000 were injured. Indian Army and Indian Paramilitary Forces were called in for relief efforts. About 52 villages were totally destroyed. The earthquake came as a surprise as India does not lie on continental plate boundary to cause an earthquake of this magnitude. Existence of fault webs was one of the theories suggested. Another theory suggested was that construction of Terna dam nearby had increased the pressure on fault lines. At the epicenter of the quake in Killari a huge crater had developed, which to date remains in place.

10) **2004 Indian Ocean Tsunami:** - Everyone has heard of the 2004 Indian Ocean Tsunami. The tsunami was triggered by an earthquake on December 26, 2004 near the Indonesian Island of Sumatra. The earthquake registered 9.0 on Richter scale. An estimated 10,136 people died, 5,832 reported missing and lakhs of people were rendered homeless according to the official reports given by Indian government. The worst affected region in India was the Andaman and Nicobar group of islands with death toll exceeding 7000. Tsunami affected 2,260 km of Indian coastline. On the mainland, Tamil Nadu was worst effected in a concentration of 500-1000 m of the coastline. Indian military was pressed into service to help in emergency rescue and relief efforts. There was an overwhelming

CHAPTER 4

INTRODUCTION TO UTTARAKHAND DISASTER

In June 2013, a multi-day cloudburst centered on the North Indian state of Uttarakhand caused devastating floods and landslides becoming the country's worst natural disaster since the 2004 tsunami. Though some parts of Himachal Pradesh, Haryana, Delhi and Uttar Pradesh in India experienced the flood, some regions of Western Nepal, and some parts of Western Tibet also experienced heavy rainfall, over 95% of the casualties occurred in Uttarakhand. As of 16 July 2013, according to figures provided by the Uttarakhand government, more than 5,700 people were "presumed dead." This total included 934 local residents.

Destruction of bridges and roads left about 100,000 pilgrims and tourists trapped in the valleys leading to three of the four Hindu Chota Char Dham pilgrimage sites. The Indian Air Force, the Indian Army, and paramilitary troops evacuated more than 110,000 people from the flood ravaged area.

ORIGIN

From 14 to 17 June 2013, the Indian state of Uttarakhand and adjoining areas received heavy rainfall, which was about 375% more than the benchmark rainfall during a normal monsoon. This caused the melting of Chorabari Glacier at the height of 3800 meters, and eruption of the Mandakini River which led to heavy floods near Gobindghat, Kedar Dome, Rudra-prayag district, Uttarakhand, Himachal Pradesh and Western Nepal, and acute rainfall in other nearby regions of Delhi, Haryana, Uttar Pradesh and some parts of Tibet.

The upper Himalayan territories of Himachal Pradesh and Uttarakhand are full of forests and snow-covered mountains and thus remain relatively inaccessible. They are home to several major and historic Hindu and Sikh pilgrimage sites besides several tourist spots and trekking trails. Heavy rainfall for four consecutive days as well as melting snow aggravated the floods. Warnings by the India Meteorological Department predicting heavy rains were not given wide publicity beforehand, causing thousands of people to be caught unaware, resulting in huge loss of life and property.

CONSEQUENCES

Landslides, due to the floods, damaged several houses and structures, killing those who were trapped. The heavy rains resulted in large flashfloods and massive landslides. Entire villages and settlements such as Gaurikund and the market town of Ram Bada, a transition point to Kedarnath, have been obliterated, while the market town of Sonprayag suffered heavy damage and loss of lives. Pilgrimage centers in the region, including Gangotri, Yamunotri, Kedarnath and Badrinath, the hallowed Hindu Chardham (four sites) pilgrimage centers, are visited by thousands of devotees, especially after the month of May onwards. Over 70,000 people were stuck in various regions because of damaged or blocked roads. People in other important locations like the Valley of flowers, Roop-kund and the Sikh pilgrimage center Hemakund were stranded for more than three days. National Highway 58, an important artery connecting the region was also washed away near Jyotimath and in many other places. Because summers have more number of tourists, the number of people impacted is substantial. For more than three days, stranded pilgrims and tourists were without rations or survived on little food. The roads

were seriously damaged at more than 450 places, resulting in huge traffic jams, and the floods caused many cars and other vehicles to be washed away. On 18 June, more than 12,000 pilgrims were stranded at Badrinath, the popular pilgrimage center located on the banks of the Alaknanda River. Rescuers at the Hindu pilgrimage town of Haridwar on the river Ganga recovered bodies of 40 victims washed down by the flooded rivers as of 21 June 2013. Bodies of people washed away in Uttarakhand were found in distant places like Bijnour, Allahabad and Bulandshahar in Uttar Pradesh. Searching for bodies who died during the extreme natural fury of June in Kedaar valley continued for several months and even as late as September, 2013, about 556 bodies were found out of which 166 bodies were found in highly decomposed state during fourth round of search operations.

Although the Kedarnath Temple itself was not damaged, its base was inundated with water, mud and boulders from the landslide, damaging its perimeter. Many hotels, rest houses and shops around the temple in Kedarnath townships were destroyed, resulting in several casualties. Most of the destruction at Kedarnath was caused by a sudden rapid melting of ice and snow on the Kedarnath Mountain, 6 km from the temple, which flooded the Char Bari Lake (upstream) and then Kedarnath. The temple was flooded with water resulting in several deaths due to drowning and panic-driven stampede. Even after a week, dead bodies had not been removed from Kedarnath town, resulting in water contamination in the Kedarnath valley and villagers who depend on spring water suffered various types of health problems like fever, diarrhea. When the flood receded, satellite images showed one new stream at Kedarnath town. No damage at the Kedarnath Temple occurred. The Uttarakhand Government announced that due to the extensive damage to the infrastructure, the temple will be temporarily closed to regular pilgrims and tourists for a year or two, but the temple rituals will still be maintained by priests. The Temple opened for pilgrims on Sunday, 4 May 2014.

Chapter 5

Role of Govt.& Rescue Operations in U.K. Disaster

ROLE OF GOVT. IN UTTARAKHAND DISASTER

A huge multi-agency rescue and relief operations were engaged for the rescue operation in flood-ravaged Uttarakhand evacuating people from the worst-affected Kedarnath town and other areas even as the death toll is feared to be in several hundreds and an equal number missing.

The official death toll still stood at 150 but Chief Minister Vijay Bahuguna said the casualties could run into several hundred's which will be known only when areas become accessible and water recedes. The state government's disaster mitigation and management center had said that the casualties could run into thousands with about 90 Dharamshala (rest-houses for pilgrims) swept away in the flash floods.

Stepping up relief and rescue operations, the Defence Ministry has deployed more than 45 Army and IAF choppers along with more than 10,000 troops in the state. IAF has deployed 20 Mi-17s and 16 Advanced Light Helicopters in the state where they have evacuated over 1,500 people.

The Army has chopper dropped troops skilled in mountain rescue operations, including 30 paratroopers with specialized equipment, to rescue those stranded near Kedarnath and Badrinath.

Many people were stranded there for last four to five days. "The Army has so far rescued more than 11,000 people, mainly from Gobindghat and Harsil. About 10,000 people are also being provided food and medical assistance," an Army release said.

Some of the survivors rescued from Kedarnath described the enormity of the destruction. Ravindra Bhatt, a sewak at the Kedarnath temple rescued by the Army, said over 90 Dharamshala and hotels at Kedarnath had been wiped out and there was no news about the 100 priests who performed puja at the temple. Around 1,000 traders at Ram Bada town are also missing.

With over 15,000 people stranded at Kedarnath, Gobindghat and the Rudra-prayag district having been evacuated, ITBP chief Ajay Chadha clarified that the worst affected Kedarnath temple area had been evacuated but 'there could still be about 400-500 people in the upper reaches'. He said Army will launch operations on Friday to bring these people down.

The Ram-Bada area around the temple was still in slush and debris and there could bodies submerged in it, he said. Chadha also said they were not in a position to give the complete death toll in the disaster unless bodies are recovered. There could be a lot of people who could

have been washed away but in such situations eyewitness accounts could sometimes be exaggerated, Chadha said.

22 helicopters have been deployed to rescue and evacuate over 22,000 stranded people to safer locations through hundreds of sorties. Food, medicines and other essentials were also carried to the needy by the Defence forces.

The ITBP DG, who is also in-charge of the National Disaster Response Force (NDRF), said 17 bodies were recovered by the troops of the specialized force from the Kedarnath area. The state government has been informed. Gaurikund, the base camp for those going to Kedarnath temple, also witnessed rescue of 250 people on Thursday by small helicopters.

Chief Minister Vijay Bahuguna termed the calamity as unprecedented adding that the casualties caused by the tragedy would run into several hundreds. "The tragedy is huge and damage tremendous with vast tracts of land still submerged under tonnes of debris. The casualties must run into several hundreds," Bahuguna told reporters at the secretariat here.

Army has also deployed over 8,000 of its troops along with over 3,000 personnel of the Border Roads Organization (BRO), Defence Ministry officials said in Delhi. In the wake of poor connectivity and communication, relatives of several pilgrims who came from outside the state were struggling to find the whereabouts of their dear ones.

The upper reaches of the state lay mute witness to the death and devastation caused by nature's fury due to Saturday's cloudburst and landslides and a complete estimate of which was still not available.

Uttarakhand Principal Secretary (Home) Om-Prakash told reporters here that 1,000 people have been evacuated from different places. Rescue efforts have also picked up in the district of Kinnaur in Himachal.

RESCUE OPERATIONS:

The Army, Air Force, Navy, Indo-Tibetan Border Police (ITBP), Border Security Force, National Disaster Response Force (NDRF), Public Works Department and local administrations worked together for quick rescue operations. Several thousand soldiers were deployed for the rescue missions. Activists of political and social organizations are also involved in the rescue and management of relief centers. The national highway and other important roads were closed to regular traffic. Helicopters were used to rescue people, but due to the rough terrain, heavy fog and rainfall, maneuvering them was a challenge. By 21 June 2013, the Army had deployed 10,000 soldiers and 11 helicopters, the Navy had sent 45 naval divers, and the Air force had deployed 43 aircraft including 36 helicopters. From 17 to 30 June 2013, the

IAF airlifted a total of 18,424 people - flying a total of 2,137 sorties and dropping/landing a total of 3,36,930 kg of relief material and equipment.

On 25 June, one of 3 IAF Mil Mi-17 rescue helicopters returning from Kedarnath, carrying 5 Air Force Officers, 9 of the NDRF, and 6 of the ITBP crashed on a mountainous slope near Gauri-Kund, killing all on board. The deceased soldiers were given a ceremonial Guard of honor by Home minister of India, at a function organized by the Uttarakhand State Government.

Indo Tibetan border Police (ITBP) a Force which guards the Indo China borders on the high Himalayas with its 3 Regional Response Centers (RRCs) based at Matli (Uttarakashi), Gauchar (Rudra-prayag) and Pithoragarh swung into action and started rescue and relief operation. 2000 strong ITBP force with its mountaineering skills and improvisation methods started rescue of stranded pilgrims. It was a simultaneous effort by ITBP at Kedar-ghati, Gangotri valley and Gobindghat areas. According to official figures by ITBP, they were able to rescue 33,009 pilgrims in 15 days on their own from extreme remote and inaccessible areas. Before Army or Air Force called in, being deployed in the nearby areas, ITBP took the first call and saved many lives. They also distributed food packets to stranded pilgrims who were in a pathetic condition being not having any food for more than 72 hours at many places.

A mock drill organized by the National Disaster Management Authority (NDMA) in May-June 2011 in three districts of Uttarakhand had raised many crucial questions. After the drill, that was conducted in Dehradun on May 27, Haridwar on May 30 and Tehri Garhwali on June 1, many solutions were offered to reduce damage in the state in the event of a disaster. None were implemented. The report of this drill is not public yet.

An important observation following the drill noted the gaps in communication between government agencies in the event of collapsed roads and linkages. It also noted that the coordination between various agencies at state and district level was better than at the local level—tehsil, block or town. This, in effect, meant that practical implementation of disaster management would have gaping holes.

"We found that the communication failed due to damage to roads and the kind of terrain the state has, and that it is not possible to have alternate communication routes either," said Jyoti Kumar Sinha, member of NDMA. He said as nothing can be done to ensure that this communication does not break during natural calamities, NDMA made some suggestions.

Food shortages could have been averted

"There is one linear road which connects different villages in Uttarakashi and Chaamoli. We suggested locations on roads should be identified where stock of food and supplies can be stored. Storage should also contain relief material for disaster situation," said Sinha. Though landslides have crippled the road, it is still usable, he said. At least the food shortage that many pilgrims are facing today in cut off areas could have been averted to an extent.

(NDMA was constituted under the Disaster Management Act of 2005 to draft policies and guidelines on disaster management, approve and coordinate the implementation of plans for disaster preparedness and management at the Central, state and ministerial levels. However, so far it has limited its role to only issuing guidelines. The state government has taken no measure so far to work on the solution. NDMA also did not ensure implementation resulting in disaster and death.)

Uttarakhand follows a “seven desk system” to deal with a disaster situation. Officers supervising seven areas—operations, logistics, communication, resources, health, services and infrastructure—sit together to make a plan and allot specific responsibilities for efficient management. This also reduces the possibility of gaps in operations due to misunderstanding among various agencies. The report said that Haridwar's command; control and communication system is the best in India and can be emulated elsewhere.

No system in place below district level

However, the system works only till the district level. "But to control the disaster at the sub-divisional and tehsil level, no system is available," stated the report. It suggested the state to follow an “incidence response system” under which the sub-divisional officer or the block development officer or the tehsildar becomes the “incidence commander” during a major disaster. In this system, district magistrate coordinates activities of incidence commanders.

This system, along with the seven desk system, can increase efficiency of management and timely communication manifold, said another official of NDMA. The recommendation, as part of a general guideline for all the states, was issued in India in 2003-04. Most states, including Uttarakhand, are yet to implement it.

The Present Day media can most effectively be used to disseminate the information during the all stages of disaster. Disaster cannot be managed by one and needs involvement of various bodies working for the society. The media is a strong link between States/Centre /Countries and whole of the world. If the media has to discharge its role it is necessary to work in co-ordination with the Government & Non – Government agencies. The Disaster management needs a permanent structure to mobilize resources and for that media, naturally becomes a sharp tool to make mobile NGOs, Govt.'s and other organizations. The media is not only powerful, it has the inner reach to the lowermost tier and the topmost tier as may be most useful for the best Governance and management in the case disaster.

The media should not only play an important role in publicity during disasters but also actively participate in the disaster management process.

The role of Media involves the following activities: -

Pre disaster: The role of media to disseminate information at all stages of Disaster.

- Awareness and information to people.
- Promotion of training aspects.
- Keep a check on various agencies.
- Planning and encourage people to face the situation.
- Removing fear of unknown.
- Dwarfing Images of all false perceptions.
- Building partnerships between media and other organizations.

During disaster:

- Media Organizations take lead in relief and rehabilitation projects.
- The media plays the roles of relaying the measures being taken.
- Providing latest information and update.
- Broadcast for the assistance of the Medical, Police, Civil Defence, NGOs, Fire Department.
- Make Announcements of the disaster and the preventive measures to be taken by the search & rescue.
- Food, water, medicines and other immediate need material.
- Sanitation and hygiene in the effective area and camps.
- Damage Assessment.
- Identify needy spots and cautioning the affected people of the dos & don'ts.
- Establishing contacts, informing and assuring the affected ones of the assistance and the measures of relief.
- Appeal for help to the masses for the victims in cash and services.

Post Disaster: -

- Monitoring re-settlement.
- Technical and material aid in reconstruction.
- Providing financial aid. Arrest Panic and Provide the True Picture.
- Mobilization of State, National and International Resources.
- Thus Media plays an informative role in pre disaster, during disaster and past disaster stage.

CHAPTER- 6
RECOMMENDATIONS

The media is one of the best way by which the information regarding any source can be transferred. The communication gap that held in the disaster of Uttarakhand was too big and cannot be ignored. But at the same time if we look at the HUDHUD Flood that came in Odisha in 2014 did not led to a huge loss because of the prepaid information provided by the weather forecaster team and correctly conveyed by the Media. Media as we know is of two types:

- 1) Print Media**
- 2) Electronic Media**

Role of Print Media

It has been our past experiences that Govt. Organizations, NGOs, District. Authorities feel helpless as disaster snaps away the communication. During this period, it has been noticed that the Print Media and the Electronic Media becomes most helpful.

Newspaper is accessible to each and every corner of the country. Every minutest of the detail can be displayed .News Big or even small is published in the Newspaper regarding Disaster Management. This automatically spreads to the remotest village through a word of mouth. The creditability of the Print Media can play a big role in Disaster Management and preparedness. The print media have rather a qualitative role to play in preparing the community and other stake holders for better management of disaster.

Electronic Media

Electronic Media is of great help in warning dissemination by the authorities and especially electronic media can play an important role in dissemination of warning to the public. A continuous contact and cooperation is to be maintained with the national and local TV and radio stations.

- Active involvement of professionals and specialists in these broadcasts is recommended.
- On TV screen, scrolling script could give warning message and even briefly interrupt programs for urgent cases.
- TVs could use sophisticated images, graphics like radar and satellite images, GIS maps, etc.
- Also, live interviews and panel discussions can be arranged.
- Internet, SMS via mobile phones, etc., should be actively employed.
- Dedicated sites could be launched and information could be provided with graphics, detailed measures, and response events

Information to be relayed to Press and Electronic Media

Information to be given to media can be broadly segregated in to following categories:

I) Occurrence of Disaster:

- Nature of the disaster, i.e. date, time, exact location
- Details of the occurrence of disaster if known fully.
- Prime cause of the occurrence will be relayed to media only with the approval of competent authority.
- Regular reports regarding progress of Rescue and Relief work.
- Expected date and time of restoration.

II) Injured Persons:

- Steps taken by Administration to render immediate medical help.
- Number of persons rescued/injured persons under treatment in different hospitals.
- Name of the hospitals where injured are being treated.
- Approximately number of patients that have been admitted in different hospitals.
- Names of injured persons.
- Communication facilities like cell phones, STD phones provided at these hospitals.
- Payment of ex-gratia.
- Facilities offered to relatives/dependents of victims.
- Number of dead bodies recovered and number of bodies identified.

III) Helpline enquiry booths and control rooms:

- Setting up of Helpline Enquiry Booths
- Details of Helpline Enquiry Booths & Control Room:
- Places where these have been opened.
- Telephone & Fax Nos.

Telephone Numbers for Information /update on disaster

- State Control Room
- District Control Room

IV) Casualty Figures:

- There is always a difference between casualty figures given by the administration and casualty figures given by the media.

- The reason for this difference is that administration gives figures based on actual number of dead bodies recovered, whereas media estimates casualty figures based on the visual damage.
- During Press briefings, latest figures on recovery of dead bodies should be shared with media & likely rise in the toll considering the ground realities.

V) Press Briefing at Disaster Site:

- Authorized officer shall collect factual information from the Site and relay the same to the media and State Headquarters. Thus an on-line communication channel will be established to keep media informed of all the important details.
- PRO should be available during press briefings in HQ.
- There should be a fixed time for press briefings so that there is no confusion regarding different versions given to separate channels at various points of time.
- Simultaneous press briefings should be held at disaster site, at District Headquarter and at State level, as per the time intimated, so that the same version is given by all concerned.
- The information release to various media will be as under:
 - TV Channels
 - News Agencies
 - Print Media
- Convenience of media shall be taken care of by PR personnel with assistance of representatives of Administration at site.
- Tour of media persons should be conducted to hospital where injured are being treated.

MEDICAL PREPAREDNESS AT HOSPITALS:

- State plan should streamline with overall health policy and health plan to address the preventive, mitigation and response plan in vent of a disaster.
- Need to incorporate the present set up of Health infrastructure and its capability of expansion at the times of disaster and mass casualty. The input from Health Nodal Officer in terms of expansion of health facilities in remote places and procurement of health professionals especially doctors and paramedics in next 5-10 years will give a fair to what kind of contingencies we can address in times of disaster.
- Gaps can be identified and reflected in SDMAP and ad hoc provisions can be planned /made to procure infrastructure (Mob Hospital) and manpower (Doc and paramedics) from other states or center in the event of a disaster.
- Risk and vulnerability profile has to match the probable requirements of resources in health to cater to that number of emergencies or injuries.
- Similar would go for Animal Husbandry and Vets

Introduction:

Hospital disaster management provides the opportunity to plan, prepare and when needed enables a rational response in case of disasters mass casualty incidents (MCI). Disasters and mass casualties can cause great confusion and inefficiency in the hospitals. They can overwhelm the hospitals resources, staffs, space and or supplies .Chaos cannot be prevented during the first minutes of a major accident or disaster. But the main aim of Hospital Emergency Plan should be to keep this time as short as possible.

Need for Emergency plans for Hospitals:

Lack of any plan leads to a situation where there are many sources of command, many leaders, and no organized or concentrated effort to solve the problem. Everyone does his/ her own work without effectively contributing to solving the larger problem of the hospital. In order to treat victims of a natural or a man-made disaster, institutions must be organized to respond in timely and efficient manner. Health establishments, particularly hospitals, should have emergency plan.

Therefore, it is essential that all Hospital Emergency Plans have the primary feature of defining the command structure in their hospital with clear-cut roles and responsibilities at the time or onset of any disaster. Most importantly, the staff should be completely what all-mundane procedures can be sidelined the event of a disaster without essentially compromising on the quality and standard procedure of medical guidelines.

REFERENCES

- 1) Report on NIDM
- 2) Balcik, B., Beamon, B. M., Krejci, C. C., Muramatsu, K. M., & Ramirez, M. (2010). "Coordination in humanitarian relief chains: Practices, challenges and opportunities", *International Journal of Production Economics*, Vol. 126 No. 1, pp.22–34.
- 3) Beamon, B. M., & Balcik, B. (2008), "Performance measurement in humanitarian relief chains", *International Journal of Public Sector Management*, Vol. 21 No.1, pp.4-25.
- 4) Costa, S. R. A. Da, Campos, V. B. G., & Bandeira, R. A. D. M. (2012), "Supply Chains in Humanitarian Operations: Cases and Analysis", *Social and Behavioral Sciences*, Vol. 54, pp.598–607.
- 5) Fritz Institute (2005), "lessons from the Tsunami: Survey of Non-Governmental Organizations in India and Sri Lanka", available at: <http://www.fritzinstitute.org/PDFs/findings/NGOsReport.pdf>, accessed on: 02 July 2013.
- 6) K.J. Anandha Kumar, Ajinder Walia, and Shekher Chaturvedi (2012), "INDIA DISASTER REPORT 2011", available at: <http://nidm.gov.in/PDF/India%20Disaster%20Report%202011.pdf>, accessed on: 14 July 2013.
- 7) Kovács, G., & Spens, K. M. (2007), "Humanitarian logistics in disaster relief operations", *International Journal of Physical Distribution & Logistics Management*, Vol.37 No.2, pp.99-114.
- 8) National Disaster Management (2013), "Flood Situation Report-2013", available at: <http://www.ndmindia.nic.in/flood2013/floods2013.htm>, accessed on: 10 July 2013.
- 9) Sinha, A. K. (2001), "The Gujarat Earthquake 2001", Asian Disaster Reduction Center.
- 10) Thomas, A. S., & Kopczak, L. R. (2005), "From logistics to supply chain management: the path forward in the humanitarian sector", Fritz Institute, Vol.15, pp.1-15.
- 11) Van Wassenhove, L. N. (2006), "Humanitarian aid logistics: supply chain management in high gear", *Journal of the Operational Research Society*, Vol. 57 No.5, pp.475–489.



Turnitin Originality Report

Humanitarian logistics by Ankit Kumar
From dissertation (MBALSCM)

Processed on 21-Apr-2015 2:53 PM IST
ID: 531490800
Word Count: 10707

Similarity Index	Similarity by Source	
1%	Internet Sources:	6%
	Publications	1%
	Student Papers	1%

sources:

- 1 1% match (student papers from 11-Mar-2015)
Submitted to Tata Institute of Social Sciences on 2015-03-11
- 2 < 1% match (student papers from 24-Feb-2015)
Submitted to Laureate Higher Education Group on 2015-02-24
- 3 < 1% match (Internet from 30-Jul-2014)
http://www.iemsql.org/index.php?mid=ContentofPresentissue&category=5747&listStyle=gallery&document_srl=14998
- 4 < 1% match (publications)
Journal of Humanitarian Logistics and Supply Chain Management, Volume 2, Issue 2 (2012-09-29)
- 5 < 1% match (publications)
Day, Jamison M. "Fostering emergent resilience: the complex adaptive supply network of disaster relief", International Journal of Production Research, 2014.

paper text:

DISSERTATION REPORT "Role of Humanitarian Logistics in Uttarakhand Disaster" DissertatiOn submitted to COllege Of Management & EcOnomic Studies fOr the partial Fulfillment Of the degree Of Masters in Business AdministratiOns MBA (Logistics & Supply Chain Management) Guided by: Dr. Saurabh Tiwari PrOf. L0gistics and Supply Chain COllege Of Management & EcOnomic Studies University Of PetrOleum & Energy Studies Dehradun – 248 006 Submitted by: Ankit Kumar EnrOllment NO: R600213009 SAP ID: 500026906 COllege Of Management and EcOnomic Studies University Of PetrOleum and Energy Studies, Dehradun, Uttarakhand, India April, 2015 CERTIFICATE OF ORIGINALITY I hereby declare this repOrt entitled "ROle Of Humanitarian L0gistics in Uttarakhand Disaster submitted in partial fulfillment fOr the Degree Of Master in Business AdministratiOn (L0gistics and Supply Chain Management) frOm University Of PetrOleum and Energy Studies is the result Of my wOrk carried Out by me under the guidance Of Dr. Saurabh Tiwari (Industry Fell0w- L0gistics and Supply Chain Management), University Of PetrOleum and Energy Studies,

https://turnitin.com/newreport_printview.asp?eq=0&eb=0&esm=0&oid=531490800&sid=... 4/21/2015