

Disaster Management & Its impact on Indian Sub-Continent

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Abstract— Indian sub-continent is one of those vulnerable areas on the basis of its climatic conditions, floods, droughts, cyclones & other phenomenon. Thus this influences a huge amount of physical & both economic changes. As this has been a considerable concern over the disaster & its impact, cyclonic effects like hud hud, bul bul & earth quake through this consequences we understood that there is a need of multi-sectoral & multidisciplinary approaches & risk reduction in the development of plans & specific strategies, this disaster management plays an important role in the country's policy frame work. Through this paper this is to highlight how disaster has taken a place & impact & its management.

Keywords: Indian Sub-Continent

I. INTRODUCTION

Indian sub-continent is one of the mazor disaster prone countries anywhere of the world. The diversion of this region more about 3/4th of the part of this continent is considered to be as disaster prone areas. Every year in India. Most of the people in India were affected by disaster. Every year all most 8 million childrens below 5 years of age are affected by Distrs. India has seen tsunamis in 2004 (in recter scale-8.9) almost coastal part of Bay of Bengal & Andaman & Nicobar Islands were the most vulnerable areas, this areas are one of the most affected by this Disasters. Almost ½ of the continent is vulnerable to earth quake (high seismic zones-III-IV) 40% of this continent, 8% belongs to the cyclogenesis effects, 12% to floods.

II. OBJECTIVE:

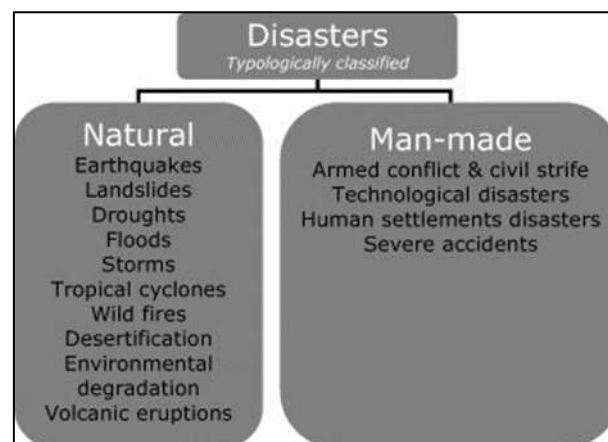
To study about the different Disasters.

To study about the Disaster Management in this sub-continent.

III. INDIA'S DISASTER PROFILE:

The Indian subcontinent is among the world's most disaster prone areas. Almost 85% of India's area is vulnerable to one or multiple hazard. Of the 28 states and 7 union territories, 22 are disaster-prone. It is vulnerable to wind spawned in the Bay of Bengal & the Arabian sea, Earth quake caused by active crustal movement in the Himalayan Mountains, floods brought by monsoons, & droughts in the country's arid & semi arid areas.

IV. CLASSIFICATION OF DISASTER MANAGEMENT:



A. Earthquake:

Earthquake, any sudden shaking of the ground caused by the passage of seismic waves through Earth's rocks. Seismic waves are produced when some form of energy stored in Earth's crust is suddenly released, usually when masses of rock straining against one another suddenly fracture and "slip." Earthquakes occur most often along geologic faults, narrow zones where rock masses move in relation to one another. The major fault lines of the world are located at the fringes of the huge tectonic plates that make up Earth's crust. The Indian subcontinent has a history of earthquakes. The reason for the intensity and high frequency of earthquakes is the Indian plate driving into Asia at a rate of approximately 47 mm/year. The following is a list of major earthquakes which have occurred in India, including those with epicentres outside India that caused significant damage or casualties in the country.

Event	Year	Magnitude	PGA	Casulty
Bihar-Nepal	1934	8.2	0.3	>10000
Assam	1950	8.7	-	1500
India-Burma	1988	7.2	0.34	709
India-Bangladesh	1988	5.8	.1	805
Garhwal	1991	7.1	.3	763
Koyna	1967	6.5	.29	1500
Chamboli	1999	6.6	.34	>400

Source: National Geo physical data Centre

Table 1:

B. Floods:

Floods can also occur in rivers when the flow rate exceeds the capacity of the river channel, particularly at bends or meanders in the waterway. Floods often cause damage to homes and businesses if they are in the natural flood plains of rivers. While floods often damage can be eliminated by moving away from rivers and other bodies of water, people have traditionally lived and worked by rivers because the land is usually flat and fertile and because rivers provide

easy travel and access to commerce and industry. Floods occur in all types of river and stream channels, from the smallest ephemeral streams in humid zones to normally-dry channels in arid climates to the world's largest rivers. When overland flow occurs on tilled fields, it can result in a muddy flood where sediments are picked up by runoff and carried as suspended matter or bed load. According to recent reports, extreme weather killed more than 1500 people in India in 2019, with heavy rains and floods alone claiming 850 victims. In the period from July to August 2019, multiple states across the country experienced episodes of severe flooding and inundation. The floods had major short-as well as long-term impacts on the lives of people residing in the affected areas.

State	River	Oriented River	Affected People
Uttar Pradesh	18.08.2008	Ganges	>80590
Andhra Pradesh	05.08.2010	Godavari	75490
Assam, U.P,	20.07.2008	Brahmaputra	283000
Andhra Pradesh	21.05.2010	Godavari	100000

Source: National Flood. Gov. in

Table 2: State wise Flood affected areas in India

C. Drought:

A drought is an event of prolonged shortages in the water supply, whether atmospheric (below-average precipitation), surface water or ground water. A drought can last for months or years, or may be declared after as few as 15 days. It can have a substantial impact on the ecosystem and agriculture of the affected region and harm to the local economy. Annual dry seasons in the tropics significantly increase the chances of a drought developing and subsequent bush fires. Periods of heat can significantly worsen drought conditions by hastening evaporation of water vapour.

Decade	Types & No. of Droughts Years		
	Severe Drought	Moderate Drought	Total-
1901-1910	2	2	4
1911-1920	1	2	3
1921-1930	0	2	2
1931-1940	0	2	2
1941-1950	0	0	0
1951-1960	0	1	1
1961-1970	1	3	4
1971-1980	0	3	3
1981-1990	1	2	3
1991-2000	0	2	2
2001-2010	1	1	2
2011-2020	0	1	1

Table 3: Decadal wise distribution of Droughts in arid Western Rajasthan

D. Cyclone:

Cyclone is a storm or system of winds that rotates about a center of low atmospheric pressure, advances at a speed of 20 to 30 miles (about 30 to 50 kilometers) an hour, and often brings heavy rain. Studies indicate that natural disaster

losses equate to up to 2% of India's Gross Domestic Product (GDP) and up to 12% of Central government revenue. The cyclones that occur between Tropics of Cancer and Capricorn are known as Tropical Cyclones. Tropical cyclones are weather systems in which winds equal or exceed gale force (minimum of 34 knot, i.e., 62 kmph). Indian sub-continent is the worst affected region of the world, having a coast line of 7516 kms. Around 5400 kms along the mainland, 132 kms in Lakshadweep and 1900 kms in Andaman and Nicobar Islands.

West Coast		
State	Coastal Districts	No. of Cyclones
Kerala	Malapurram	1
	Kozikode	1
	Kannur	1
Karnataka	Dakshina Kannada	1
	Uttar Kannda	1
Maharashtra	Ratnagiri	3
	Mumbai	3
	Thane	4
Goa	Goa-II	1
Gujrat	Surat	1
	Kaira	1
	Bhabnagar	3
	Junangarh	4
East Coast		
West Bengal	North & South 24 Parganas	35
	Medinipur	34
Odisha	Balasor	32
	Cuttuk	32
	Puri	19
	Ganjam	15
AP	East Godavari	8
	West Godavari	5
	Krishna	15

Table 4: Major affected Cyclone affected areas in India (Coastal)

E. Landslides:

Landslides are widespread, frequent and sudden hazards that strike human lives, livestock, livelihood, living places and environment in an adverse manner leading to colossal losses and damages directly or indirectly in a cumulative way. The present paper is an attempt to compile the information related to the incidents and impacts of landslides in terms of their location, time of occurrence and losses/damaged caused to the humans, habitations and highways.

V. DISASTER MANAGEMENT:

The aim of the Disaster Management is to reduce, or avoid, the potential losses from hazards, & different vulnerable effect assure prompt and appropriate assistance to victims of disaster, and achieve rapid and effective recovery. The Disaster management cycle illustrates the ongoing process by which governments, businesses, and civil society plan for and reduce the impact of disasters, react during and immediately following a disaster, and take steps to recover

after a disaster has occurred. Appropriate actions at all points in the cycle lead to greater preparedness, better warnings, reduced vulnerability or the prevention of disasters during the next iteration of the cycle. The complete disaster management cycle includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

The mitigation and preparedness phases occur as disaster management improvements are made in anticipation of a disaster event. Developmental considerations play a key role in contributing to the mitigation and preparation of a community to effectively confront a disaster. As a disaster occurs, disaster management actors, in particular humanitarian organizations, become involved in the immediate response and long-term recovery phases. The four disaster management phases illustrated here do not always, or even generally, occur in isolation or in this precise order. Often phases of the cycle overlap and the length of each phase greatly depends on the severity of the disaster.

- Mitigation - Minimizing the effects of disaster. Examples: building codes and zoning; vulnerability analyses; public education.
- Preparedness - Planning how to respond. Examples: preparedness plans; emergency exercises/training; warning systems.
- Response - Efforts to minimize the hazards created by a disaster. Examples: search and rescue; emergency relief.
- Recovery - Returning the community to normal. Examples: temporary housing; grants; medical care.

VI. SUSTAINABLE DEVELOPMENT

Developmental considerations contribute to all aspects of the disaster management cycle. One of the main goals of disaster management, and one of its strongest links with development, is the promotion of sustainable livelihoods and their protection and recovery during disasters and emergencies. Where this goal is achieved, people have a greater capacity to deal with disasters and their recovery is more rapid and long lasting. In a development oriented disaster management approach, the objectives are to reduce hazards, prevent disasters, and prepare for emergencies. Therefore, developmental considerations are strongly represented in the mitigation and preparedness phases of the disaster management cycle. Inappropriate development processes can lead to increased vulnerability to disasters and loss of preparedness for emergency situations.

VII. MITIGATION

Mitigation activities actually eliminate or reduce the probability of disaster occurrence, or reduce the effects of unavoidable disasters. Mitigation measures include building codes; vulnerability analyses updates; zoning and land use management; building use regulations and safety codes; preventive health care; and public education.

Mitigation will depend on the incorporation of appropriate measures in national and regional development planning. Its effectiveness will also depend on the

availability of information on hazards, emergency risks, and the countermeasures to be taken. The mitigation phase, and indeed the whole disaster management cycle, includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

VIII. PREPAREDNESS

The goal of emergency preparedness programs is to achieve a satisfactory level of readiness to respond to any emergency situation through programs that strengthen the technical and managerial capacity of governments, organizations, and communities. These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public education and building early warning systems. Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials are maintained in cases of national or local catastrophes.

During the preparedness phase, governments, organizations, and individuals develop plans to save lives, minimize disaster damage, and enhance disaster response operations. Preparedness measures include preparedness plans; emergency exercises/training; warning systems; emergency communications systems; evacuations plans and training; resource inventories; emergency personnel/contact lists; mutual aid agreements; and public information/education. As with mitigations efforts, preparedness actions depend on the incorporation of appropriate measures in national and regional development plans. In addition, their effectiveness depends on the availability of information on hazards, emergency risks and the countermeasures to be taken, and on the degree to which government agencies, non-governmental organizations and the general public are able to make use of this information.

IX. HUMANITARIAN ACTION

During a disaster, humanitarian agencies are often called upon to deal with immediate response and recovery. To be able to respond effectively, these agencies must have experienced leaders, trained personnel, adequate transport and logistic support, appropriate communications, and guidelines for working in emergencies. If the necessary preparations have not been made, the humanitarian agencies will not be able to meet the immediate needs of the people.

X. RESPONSE

The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. It also may involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found.

Humanitarian organizations are often strongly present in this phase of the disaster management cycle.

XI. RECOVERY

As the emergency is brought under control, the affected population is capable of undertaking a growing number of activities aimed at restoring their lives and the infrastructure that supports them. There is no distinct point at which immediate relief changes into recovery and then into long-term sustainable development. There will be many opportunities during the recovery period to enhance prevention and increase preparedness, thus reducing vulnerability. Ideally, there should be a smooth transition from recovery to on-going development.

Recovery activities continue until all systems return to normal or better. Recovery measures, both short and long term, include returning vital life-support systems to minimum operating standards; temporary housing; public information; health and safety education; reconstruction; counseling programs; and economic impact studies. Information resources and services include data collection related to rebuilding, and documentation of lessons learned.

XII. DISASTER MANAGEMENT ACT

- The Disaster Management Act was enacted on 23rd December, 2005. The Act provides for establishment of NDMA (National Disaster Management Authority).
- SDMA (State Disaster Management Authority) DDMA (District Disaster Management Authority) Act
- It provides for constitution of Disaster Response Fund and Disaster Mitigation Fund at National, State and District level. Establishment of NIDM and NDRF. Provides penalties for obstruction, false claims misappropriation etc.

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