

# Natural Disasters and their Management in India

Kuldeep Sharma

MSc. Geography, UGC NET, Govt. PG College, Hisar (India)

---

## ARTICLE DETAILS

### Article History

Published Online: 20 February 2019

### Keywords

natural, disaster, flood, management

---

---

## ABSTRACT

Disasters are of two major kinds, natural and manmade, and affect the community. Natural disasters are brought about by common earth forms like floods, dry spells, violent winds, tidal waves, seismic tremors and plagues. Synthetic debacles happen because of concoction spills, mishaps, psychological oppression exercises and so forth. India is inclined to practically all the real catastrophic events. The high populace thickness joined with poor readiness, arranging and the board, and salvage and help measures unavoidably lead to gigantic misfortunes of lives and property consistently in the nation. This paper investigations the fiasco the board arrangement of India and its usage utilizing two ongoing contextual analyses – one where an overall level of accomplishment has been accomplished (twisters) and the other where we are as yet attempting to have even a fundamental readiness framework set up (floods).

---

## 1. Introduction

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, dry seasons, violent winds, landmass is inclined to tremors of different powers; more than 40 million hectares is inclined to floods; about 8% of the all out region is inclined to typhoons and 68% of the zone is vulnerable to dry season. In the decade 1990-2000, a normal of around 4344 individuals lost their lives and around 30 million individuals were influenced by debacles consistently. The misfortune regarding private, network and open resources has been cosmic. Over the recent years, the Government of India have achieved a change in perspective in the way to deal with catastrophe the board. The new methodology continues from the conviction that advancement can't be manageable except if catastrophe moderation is incorporated with the improvement procedure. Another foundation of the methodology is that relief must be multi-disciplinary traversing over all segments of improvement. The new arrangement likewise radiates from the conviction that interests in moderation are significantly more savvy than consumption on help and rehabilitation [1].

Disasters and their administration for the most part get talked about in their repercussions yet for all intents and purposes it should bring about arranging and setting up the technique to handle and relieve catastrophes in a dependable and powerful way. Calamities, both common and unnatural, are full scale level occasions or procedures, which prompt unsettling influences and unrest for a drawn out hazardous condition for a network. World Development Report classifies catastrophic events into hydro meteorological (seismic tremors, volcanic emissions, and so on) and geophysical (avalanches, dry seasons, and so forth) classifications. The extent of unnatural calamities comprehensively envelops clashes, common hardship, riots and modern debacles. In the previous decade (1991-2000), Natural disasters have slaughtered 66,59,598 individuals, representing 88 percent of all passings because of fiascos. Additionally, unnatural calamities have murdered 86,923 individuals amid the decade. Almost 66% of

the general population executed in these calamities hail from creating nations like India, with just four percent of the losses being accounted for from exceptionally created nations. Debacle the executives is basically a dynamic procedure. It involves the traditional administration elements of arranging, sorting out, staffing, driving and controlling. It additionally includes numerous associations, which must cooperate to forestall, relieve, get ready for, react to and recoup from the impacts of debacle. Catastrophe the board would along these lines incorporate prompt reaction, recuperation, aversion, alleviation, readiness and the cycle goes on. India is considered as the world's most calamity inclined nation. In the same way as other different nations in this district, India is tormented by different sorts of catastrophic events consistently, for example, floods, dry season, quakes, typhoons and avalanches. A huge number of individuals are influenced each year and the monetary misfortunes brought about by catastrophic events add up to a noteworthy offer of the Gross National Product (GNP). Natural disasters are gigantic monetary weights on creating economies, for example, India. Consistently, gigantic measure of assets are prepared for salvage, help and restoration works following cataclysmic event occurrences. In India, a closer investigation of what changes a characteristic occasion into a human and monetary fiasco uncovers that the crucial issues of advancement that the nation faces are similar issues that add to its weakness to the disastrous impacts of regular dangers. The essential reasons for weakness incorporate quick and uncontrolled urbanization, determination of far reaching urban and country neediness, corruption of the earth coming about because of the blunder of normal assets, wasteful open strategies, and slacking (and confused) interests in framework [2].

## 2. Types of disasters

Primarily disasters are triggered by natural hazards or human-induced, or result from a combination of both. Specifically, human-actuated variables can incredibly bother the unfavorable effects of a cataclysmic event. Indeed, even at a bigger scale, universally, the UN Inter-Governmental Panel

on Climate Change (IPCC) has appeared human-actuated environmental change has altogether expanded both the recurrence and force of outrageous climate occasions. While overwhelming downpours, typhoons, or seismic tremors are on the whole characteristic, the effects may, and are typically, compounded by numerous components identified with human action. The broad industrialization and urbanization increments both the likelihood of human-incited catastrophes, and the degree of potential harm to life and property from both normal and human-instigated fiascos. The human culture is additionally defenseless against Chemical, Biological, Radiological, and Nuclear (CBRN) catastrophes [3].

### 3. Dimensions of Disasters

The debacle the executives and its arranging at different levels must consider the helplessness of catastrophe influenced region, and the limit of the specialists to manage the circumstance. Utilizing this methodology, the High Power Committee on Disaster Management, in its report of 2001, arranged fiasco circumstances into three 'levels': L1, L2, and L3. The time of commonality, L0, ought to be used for calamity chance decrease.

a) Level-L1: The dimension of fiasco that can be overseen inside the capacities and assets at the District level. Be that as it may, the state experts will stay in status to give help if necessary.

b) Level-L2: This means the catastrophe circumstances that require help and dynamic assembly of assets at the state level and arrangement of state level organizations for fiasco the board. The focal organizations must stay careful for quick arrangement whenever required by the state.

c) Level-L3: This compares to an almost disastrous circumstance or a huge scale debacle that overpowers the State and District experts.

The order of fiasco circumstances into levels L0 to L3 finds no notice in DM Act 2005. Further, the DM Act does not have any arrangement for informing any debacle as a 'national catastrophe' or a 'national calamity' [4].

### Floods

Floods in the Indo-Gangatic Brahmaputra plains are an annual feature. Seventy five percent of precipitation is focused more than four months of storm (June - September) and subsequently practically every one of the streams convey overwhelming release amid this period. The issue of residue statement, waste clog and synchronization of stream floods intensify the flood risk with ocean tides in the beach front fields. Brahmaputra and the Gangetic Basin are the most flood inclined regions. The other flood inclined zones are the north-west area of west due to over streaming waterways, for example, the Narmada and Tapti, Central India and the Deccan locale with real eastbound streaming streams like Mahanadi, Krishna and Cavery. The normal region influenced by floods yearly is around 8 million hectares while the all out region in India subject to floods is 40 million hectares in which Uttar Pradesh has 21.9%, Bihar (12.71%), Assam (9.4%), West Bengal (7.91%), Orissa (4.18%) and different states have 43.9% flood inclined zone. An investigation of information gathered from various states for the period amid 2004-2006 by Central Water Commission, Ministry of Water Resources,

Government of India uncovered that normal yearly harm to yields, houses and open utilities in the nation was around Rs.2706.24 million [5].

### Drought

We have a to a great extent rainstorm dependant water system arrange. An inconsistent example, both low (under 750 mm) and medium (750 - 1125 mm) makes 68 percent of the complete sown zone helpless against intermittent dry spells. A multi year investigation uncovers that the recurrence of event of underneath typical precipitation in parched, semi-dry and sub-sticky zones is 54-57%, Severe and uncommon dry seasons happen in dry and semi-bone-dry zones once in pretty much every 8-9 years. Semi-dry and parched climatic zones are liable to around 50 percent of serious dry seasons that spread commonly 76 percent of the territory. In this locale, uncommon dry seasons of most extreme power happened on a normal once in 32 years and pretty much every third year used to be a dry spell year. Dry spell is a lasting element in a few conditions of India. 16% of the nation's all out territory is dry season inclined and roughly 50 million individuals are every year influenced by dry spells. Infact, tenacious dry spell with not exactly average precipitation over an extensive stretch of time offers ascend to genuine natural issues. An unfavorable water balance has been added to dry and semi dry class. The scene of dry spell of 1987-88 was one of the most noticeably bad dry seasons of the century. Dry season circumstance have additionally influenced around eleven states in the nation in 1999-2000, conveying untold hopelessness to the general population and the country. In 2002, twelve conditions of the nation have been influenced again by serious dry season because of the disappointment of South-West storm. The Government of India has proclaimed them as dry spell influenced states.

### Typhoons

India has a long coastline of roughly 8,000 km. There are two particular violent wind seasons: pre-storm (May-June) and post-rainstorm (October - November). The effect of these violent winds is bound to the waterfront areas, the most extreme demolition being inside 100 km from the focal point of the twisters and on either side of the tempest track. Most setbacks are caused because of waterfront immersion by tsunamis, storm floods and heavy rains. The event of tropical violent wind is just about a typical regular marvel. Be that as it may, their attributes like recurrence, force and seaside sway differ from locale to area. Be that as it may, a significant number of these have been the deadliest subsequent to intersection the coast flanking the north narrows of Bengal like seaside territories of Andhra Pradesh, Orissa, West Bengal and Bangladesh, primarily on account of the genuine tempest flood issue around there.

### Earthquakes

The Himalayan mountain ranges are viewed as the world's most youthful overlay mountain ranges. The underground Himalayas are topographically dynamic. In a range of 53 years four seismic tremors surpassing size 8 have happened in this locale. The peninsular piece of India involves stable mainland outside layer. In spite of the fact that these locales were

viewed as seismically least dynamic, quakes, which happened in Latur in Maharashtra on September 30, 1993 of extent 6.4 on the Richter scale and Gujarat 2001 of size 6.9 on the Richter scale caused significant loss of lives and harm to framework. India has a vast piece of its territory region at risk to wide scope of plausible most extreme seismic powers where shallow tremor of extents of 5.0 or more on Richter Scale have been known to happen in the authentic past or recorded in the last around 100 years. The Himalayas frontal that are flanked by the Arakan Yoma overlap belt in the east and the Chaman blame in the west comprise a standout amongst the most seismically dynamic locales on the planet [6].

### **Avalanches**

The Himalayas, the Northeast slope ranges and the Western Ghats experience impressive avalanche movement of shifting powers. Waterway disintegrations, seismic developments and substantial rainfalls cause extensive avalanche movement. Substantial rainstorm precipitation frequently in relationship with cyclonic unsettling influences result in impressive avalanche movement on the inclines of the Western Ghats. The Himalayan, the north-east slope and the western ghats experience significant land-slides exercises of fluctuating powers. The stone and trash conveyed by the waterways like kosi starting in the Himalayas cause colossal avalanche in the valleys. The seismic action in the Himalayan area additionally results in extensive avalanche development. The Government of India is working together with a wide scope of Indian scholastic organizations on slope investigate.

### **Torrential slides**

Torrential slides comprise a noteworthy peril in the higher heights of Himalayas. Portions of the Himalayas get snowfall round the year and experience sports are in plenitude in such areas. Serious snow torrential slides happen in Jammu and Kashmir, Himachal Pradesh and the Hills of Western Uttar Pradesh [7].

## **4. Preparedness, mitigation and prevention**

In disaster situations, a quick rescue and relief mission is inevitable; however damage can be considerable minimized if adequate preparedness levels are achieved. To be sure, it has been seen in the past that as and when consideration has been given to sufficient readiness measures, the misfortune to life and property has significantly decreased. Coming this pattern, the calamity the board setup in India has, in the ongoing years, situated itself towards a solid spotlight on preventive methodologies, fundamentally through authoritative changes and participatory techniques. Readiness estimates, for example, preparing of job players including the network, improvement of cutting edge anticipating frameworks, powerful correspondences, or more each of the a sound and very much arranged institutional structure including the administration associations, scholastic and research establishments, the military and the non-legislative associations have extraordinarily added to the general catastrophe the board in the nation. This can plainly be seen from the different examples of diminished harms from debacles because of better readiness and facilitated between organization reaction. Readiness is the way to breaking the debacle cycle. The great

practices are an aftereffect of the uplifted mindfulness and affectability towards networks in danger. The methodology of lessening network powerlessness for decreasing debacles has paid rich profits. The initial phase toward this path has been of ID of powerless networks. Those people group occasionally presented to normal dangers, and inside them those with low dimensions of adapting powers, for example, monetarily flimsier areas, are the main focal point of readiness endeavors. Minimal segments of provincial networks and occupants of casual settlements and ghettos in urban zones fall inside this class. Endeavors toward coordinating debacle counteractive action into environment arranging forms are a standout amongst the most suitable catastrophe anticipation implies. The National Center for Disaster Management's work on creating and testing techniques for incorporating hazard decrease utilizing network support into urban arranging is one such activity. The general course of current endeavors is one of multi-pronged methodology of activation of network observations towards a culture of counteractive action of catastrophic events [8].

## **5. Challenges for the future**

There is a developing need to take a gander at catastrophes from an advancement point of view. Catastrophes can have destroying impact on networks and can altogether set back advancement endeavors all things considered. Be that as it may, at that point, it could likewise offer a chance to put resources into advancement endeavors in a post fiasco situation. Fiascos are open doors for networks to rethink themselves. Calamity counteractive action, moderation, readiness and help are four components, which add to and gain from the execution of supportable improvement strategies. These components, alongside ecological security and feasible improvement, are intently between related. The Yokohama Strategy, exuding from the worldwide decade for cataclysmic event decrease in May 1994, underlines that catastrophe counteractive action, relief and readiness are superior to fiasco reaction in accomplishing the objectives and destinations of powerlessness decrease. The Government of India has received relief and avoidance as fundamental segments of its improvement methodology. The Tenth Five Year Plan accentuates the way that advancement can't be feasible without moderation being incorporated with the improvement procedure. To sum things up, Disaster Management is being standardized into improvement arranging. Be that as it may, there are different basic issues in the entire procedure. Truth be told, various issues come from social imbalances. Over the long haul, the onus is upon the neighborhood networks to deal with calamities with the assistance of the state and other such associations. The people group elements is very perplexing in a nation like India. There is a need to address explicit neighborhood needs of powerless networks through nearby conventions and societies. Reclamation of basic property assets with the interest of the nearby dimension bodies is a genuine test. The recorded focal point of fiasco the executives has been on alleviation and restoration after the occasion however at this point the emphasis is on making arrangements for calamity readiness and moderation. Given the high recurrence with which one or other piece of the nation endures because of catastrophes, alleviating the effect of fiascos must be a necessary segment of our advancement arranging. One

of the glaring lacunae during the time spent Disaster Management in India has been the ignoring of unnatural catastrophes. The ongoing endeavors center absolutely around catastrophic events, while the current worldwide circumstance likewise requests activities in dealing with the effect of unnatural calamities. Advancements at the global dimension, especially the common wars and common difficulty in Eastern Europe and Southern America coming full circle on 9/11 have brought the issue of unnatural debacles at the front line of fiasco the board. The worldwide network has perceived the genuine outcomes of Nuclear, Biological and Chemical (NBC) fighting. This remaining parts a genuine test for India to address soon. The need of great importance is to chalk out a multi-pronged methodology for complete calamity the executives including anticipation, readiness, reaction and recuperation from one viewpoint and start improvement endeavors pointed towards hazard decrease and alleviation on the other. The nations in the Asia-Pacific locale ought to build up a territorial co-appointment instrument for space-innovation based catastrophe relief and fortify co-activity, Luan proposed, adding that they additionally need to set up an all-climate and record-breaking complete space-based fiasco moderation framework and offer the data.

## 6. Conclusion

Catastrophe Management must be a multi-disciplinary and master dynamic methodology. Other than different measures for setting up institutional and arrangement system, debacle avoidance, alleviation and readiness articulated in this paper and activities being taken by the Central and State Governments, the network, common society associations and

media likewise have a key task to carry out in accomplishing our objective of moving together, towards a more secure India. The message being put crosswise over is that, so as to move towards more secure and feasible national advancement, improvement undertakings should be delicate towards fiasco alleviation. Our central goal is defenselessness decrease to a wide range of risks, be it common or artificial. This isn't a simple undertaking to accomplish, keeping in view the immense populace, and the various characteristic risks to which this nation is uncovered. Notwithstanding, on the off chance that we are firm in our conviction and resolve that the Government and the general population of this nation are not set up to pay the cost as far as huge setbacks and monetary misfortunes, the errand, however troublesome, is attainable and we will accomplish it. We have taken the initial few however huge strides towards helplessness decrease, setting up anticipation and moderation measures and readiness for a quick and expert reaction. With a huge mindfulness age crusade and working up of abilities just as organization of the whole component through a techno legitimate and techno monetary system, we are bit by bit moving toward maintainable improvement.

Our vision 2020 is to fabricate a more secure and secure India through continued aggregate exertion, collaboration of national limits and individuals' investment. What looks a fantasy today will be changed into reality in the following two decades. This is our objective and we will endeavor to accomplish this objective with an evangelist enthusiasm. The way forward, which looks troublesome today, will turn into significantly simpler as we move along together.

## References

1. Bhandari, R.K. (2006). Disaster Management in India: A New Awakening, *Disaster & Development*, 1(1): 1 -27.
2. NCDM (1999): *Natural Disasters in India: Some Recent Case Studies*, 1999.
3. National Policy on Disaster Management (2009), National Disaster Management Authority
4. World Disasters Report 2006- International Federation of Red Cross and Red Crescent Societies
5. The Disaster Management ACT, 2005, No.53 of 2005. 23rd December 2005. The Gazette of India, Part II, Section 1, No. 64.
6. Planning Commission (2002); "Tenth Five Year Plan (2002-2007) - Vol.1"; Planning Commission, Government of India; New Delhi.
7. Gupta A; "Information Technology and Natural Disaster Management in India"; [www.gisdevelopment.net](http://www.gisdevelopment.net)  
[www.ndmindia.nic.in](http://www.ndmindia.nic.in)  
International Federation of Red Cross and Red Crescent Societies (2001); "World Disaster Report - Focus on reducing risk"; IFRCRC; Geneva.