



Disaster management in India: Information and rescue

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Abstract

The research paper presented has analyzed about information and rescue of disaster management in India. Under this, natural and human disasters have also been discussed. Natural disasters, directly affecting the economy, agriculture, food security, water, sanitation, environment and health, have also been analyzed. Along with the description of the provisions of the Disaster Management Act, 2005, new technologies and techniques related to making disaster management more effective are also described. It also states that we must develop the art of living with disasters. The study also discusses various programs run by the Government of India which have helped in improving the standard of living of the citizens of India as well as reducing the risk of various disasters. The present study also briefly summarizes the corona global epidemic.

Keywords: natural disaster, man-made disaster, information, rescue, corona pandemic, disaster management

Introduction

We are surrounded by disasters. It is true that neither human beings nor machines are able to prevent these disasters. Disasters, whether man-made or natural, leave a deep pain in life. Obviously, disasters will continue to come, but if we do not manage or control these disasters properly, then the situation will be terrible. For better disaster management, we should keep two words in equal focus - information and rescue. 'Information' can play an important role in 'rescue' from any disaster or contingency. Knowing what the disasters are, how many types are there, how they come, when they come, what kind of damage is done etc. If you know the questions and their answers, then the management of the disaster will be easy. Attempts have been made here to focus specifically on the disaster and its management.

Result and Discussion

According to the Disaster Management Act-2005, disaster refers to the destruction, disaster or very serious event in an area that occurs due to natural or man-made reasons or due to accidental control or negligence and causing a very large amount of human life. There is a loss or human suffering or damage to property or environmental degradation. This incident is often more frightening than the community in the affected area's ability to cope. For example, a cloudburst in Uttarakhand of June-July 2013 and currently COVID 19 pandemic and from many other disasters can be understood.

If classified, then there are mainly two types of disasters:

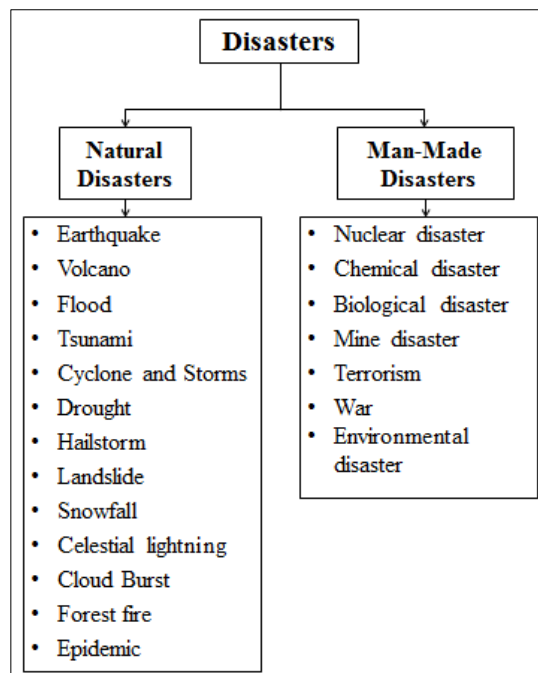


Fig 1: Classification of Disasters

History is witness that India has been the victim of many types of disasters - cyclone, flood earthquake, drought are the main among them. For this, the physical structure of India is the main responsible, such as the northern part of the country is the new construction of the Himalayas covered with mountain ranges, where tectonic movements take place. This forms the basis for earthquakes of different intensities. On the other hand, the evergreen rivers originating in the Himalayas - Ganga, Yamuna, Indus, Ghaghra, Rapti Gandak, Kosi and Brahmaputra, plunge into the plains of Uttar Pradesh, Bihar, West Bengal and Assam,

human activities have been performed in them like forest erosion. Construction of large dams, making it more frightening by providing blockage or diversion in the natural stream of the river. On the other hand, the western part of India, especially the western part of Aravali in Rajasthan, the arid and semi-arid regions of desert and peninsular India, where the monsoon winds receive less than normal rainfall due to lack of humidity and the problem of drought has to face many problems. 7516 km to the south there is a maritime boundary where the sea movements remain prone to cyclonic storms, tsunamis and earthquakes. Apart from this, due to environmental disaster and unhealthy relations with neighboring countries give rise to man-made disasters such as the threat of terrorism and war, it not only causes

loss of thousands of lives but also causes huge amount of damage to private, community and public assets.

Table-1 attempts to show the losses by Natural disasters in India.

Table 1: Losses by Natural disasters in India (2005-2014)

10-year moving average 2005-2014	
Number of events	16
Number of deaths	2377
Economic loss (,000 US\$)	4,384,925

Source: Prevention Web

Table - 2 attempts to show what kind of damage India has to suffer due to the disasters caused by nature.

Table2: List of major natural disasters that have occurred over the last 21 years in India

Date	Place	Nature of the event	Economic losses	Insured losses	Number of fatalities	Number of affected persons and others
			(in billion USD)			
May, 2021	Andaman & Nicobar Islands, Jharkhand, Odisha and West Bengal	Cyclone Yaas	-	-	-	-
May, 2021	Kerala, Lakshadweep, Tamil Nadu, Karnataka, Goa, Gujarat and Rajasthan	Cyclone Tauktae	2.1	-	169	11,774,038 affected 80 injured 257,135 evacuated 56,846 House damage
2020-2021	Entire India	Corona Epidemic	-	-	315,263 (till 27 May, 2021)	27,369,093 people affected (till 27 May, 2021)
May, 2020	West Bengal	Cyclone Amphan	13.5	-	103	500 000 homeless
August, 2018	Kerala	Floods	3.52	0.37	504	223 139 homeless
November, 2015	Chennai (Tamil Nadu)	Floods	2.37	0.98	289	-
April, 2015	Himalaya	Storm	-	-	78	20 000 injured
October, 2014	Andhra Pradesh	Storm	7.56	0.68	68	43 injured
September, 2014	Jammu and Kashmir	Floods	6.45	0.26	665	-
June, 2013	Uttarakhand	Floods	1.21	0.55	5 748	4 473 injured 271 931 homeless
October, 2013	A&N Islands, Andhra Pradesh, Odisha, Jharkhand, West Bengal, Chhattisgarh, Bihar and Eastern part of Uttar Pradesh	Cyclone Phailin	4.26	-	46	-
September, 2009	Andhra Pradesh	Floods	5.63	0.06	300	2 000 000 homeless
2007	Bihar	Floods			1287	10 million people, 29,000 houses destroyed, 44,000 houses damaged, 4,822 villages damaged and 1 crore hectare of farmland damaged
August, 2006	Gujarat	Floods	4.3	0.52	350	4 000 000 homeless
July, 2005	Maharashtra	Floods	4.36	0.93	1 150	15 000 homeless
January, 2001	Gujarat	Earthquake	6.13	0.14	19 737	166 850 injured 1 790 000 homeless

Source: Atlas Magazine and Wikipedia

Natural disasters directly affect the economy, agriculture, food security, water, sanitation, environment and health. For example, within a few minutes of the earthquake, large skyscrapers are incinerated, causing considerable loss of money, disintegrating some living people and leaving a psychosocial far-reaching effect. In the event of a flood disaster, the river erodes far away in its coastal areas, while on the one hand it directly damages the residential area, agricultural land and crops; on the other hand, by spreading water, various pandemics affect the health. The people

of Bangar region are also reluctant to marry their girls in the basins and look at them in a haphazard manner which reflects its social impact. In contrast to this (flood), lack of water in arid and semi-arid areas also causes disaster, where animals and trees have to struggle a lot in search of water to survive, people food is not available, starvation spreads, trees also drop leaves or become thorny. In coastal areas, 'tsunami', 'Nisha', 'Mahosan' 'Phailin' 'Tauktae' 'Yaas' etc. cyclones cause a lot of loss of money and life, tourism centers are destroyed; the existence of many tribes,

diverse linguistic groups, fishermen and coral islands fade away. At the time of the cloudburst in Uttarakhand's religious city Kedarnath, Due to excessive rainfall in a very short time, not only the people of the city but also the people of the entire country were shaken, the loss of life and property could not be accurately estimated, there was an explosion of dead bodies which could not be identified and cremated, even in such unfortunate gruesome environment. Apart from these natural disasters, man-made disasters like Hiroshima-Nagasaki nuclear attack in Japan, Charanobul nuclear accident in Russia, Bhopal gas tragedy in India, Fukusima nuclear power plant gas leak, attack by bio-elements, venting terrorist activities by neighbors or others. Global warming, greenhouse effect, ozone depletion etc., in the long run, physically, adversely affects mental health. In any case, one thing is very true that disasters, by eradicating the distinction of high, low, poor, rich, caste, class and gender, bring everyone equally under the sky and make them stand up. As per National Disaster Management Act - 2005, the Government has set up National Disaster Management Authority (NDMA) at the national level while the SDMA and DDMA is formed at the state and district levels respectively. In addition, the government has set up specific forces to act in times of disaster, set up a National Institute of Disaster Management for training and research, and has put in place mechanisms to provide funds for immediate relief. Apart from this, the Government of India is undertaking several ambitious programs in the areas of agriculture, rural development, urban development, drinking water, rural roads, health, education and food security, which have helped in reducing disaster risk along with improving the quality of life of the people. For example, with the Pradhanmantri Sadak Yojana connecting almost all the villages to the all-weather road, their products are increasing their income by reaching the market at the right time. People are getting easy access to primary health centers. Under the MNREGA program, wells, ponds, tree plantations etc. are being carried out in the villages, which are giving employment and income guarantee to the people as well as promoting rural ecology. Nevertheless, efforts should be made to make it more effective by including the main components of disaster risk in these programs. To improve the effectiveness of disaster management, new systems of thinking, technology and methods such as information and communication technology for alerting and early warning, Geographical Information System (GIS), Global Positioning System (GPS), General Pocket Radio Service (GPRS), The message can be conveyed to the people in the local language through printing of public awareness messages on remote sensing, television, radio and other equipment, newspapers, rail tickets and air passes. Disaster risk reduction measures should be included in the curriculum of schools and colleges so that awareness of safety culture and preventive measures can be raised in children. In the process of disaster management, a new initiative can be taken to cover human life as well as insurance of material goods and also insurance in case of accidental disaster- earthquake, flood, fire, storm, tsunami, drought, terrorism, corona pandemic etc. For this, the government will have to come forward and conduct a comprehensive awareness campaign among the common people and explain the importance of insurance. 10-point agenda for disaster risk reduction have been outlined by Prime Minister of India. This agenda has been focuses on all development sectors must imbibe the principles of disaster risk management. This agenda also

emphasis to work towards risk coverage for all i.e., starting from that person who stands last in the line means very poor households to SMEs to Multi-national Corporation to nation states.

Prime Minister's Ten Point Agenda on Disaster Risk Reduction (DRR) is given as under:

1. All development sectors must imbibe the principles of disaster risk management
2. Risk coverage must include all, starting from poor households to SMEs to multi-national corporations to nation states
3. Women's leadership and greater involvement should be central to disaster risk management
4. Invest in risk mapping globally to improve global understanding of Nature and disaster risks
5. Leverage technology to enhance the efficiency of disaster risk management efforts
6. Develop a network of universities to work on disaster-related issues
7. Utilise the opportunities provided by social media and mobile technologies for disaster risk reduction
8. Build on local capacity and initiative to enhance disaster risk reduction
9. Make use of every opportunity to learn from disasters and, to achieve that, there must be studies on the lessons after every disaster
10. Bring about greater cohesion in international response to disasters.

Regarding disaster risk reduction, there are many frameworks exists at world level. Sendai framework (SFDRR) is one of them. SFDRR (2015-2030) was adopted at the third UN World conference in Sendai, Japan, on March 18, 2015. Under the SFDRR, there is a need for focused action within and across sectors by states as local, national, regional and global levels in the following four priorities areas:

1. Understanding disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response, and to «Build Back Better» in recovery, rehabilitation and reconstruction

It is the need of hour for India mainstream disaster risk reduction in developmental planning and to adopt an inclusive approach towards risk reduction to ensure sustainability of developmental initiatives and to widen its reach to cover every people.

In this order, STAPLE limit of multipurpose decision should be used in disaster management i.e., disaster management should be such that it is acceptable from social view (S), new from technical view (T), quick from administrative view (A), associate from political view (P), moral from human view (L) and be sustainable from an ecological (E) point of view. Another important formula related to disaster management is 5-R in which one R means response (immediate action), second R-rescue (rescue work), third R-Relief (relief work), fourth R-rehabilitation (rehabilitation work) and fifth R-Reconstruction (Reconstruction work). For example, after the tsunami and other ocean storms, fishermen have to make arrangements for food, shelter, medicine

as well as fishing equipment - nets, boats, instruments, etc., we have to help to them otherwise this disaster management will be considered incomplete.

One more thing that is necessary for disaster management is - 'Development of art of living with disasters' like Japan, which is the most earthquake prone area, people live happily in harmony with it, Eastern Uttar Pradesh or North Bihar where every year Flood disaster comes here. People here do not curse the floods, but instead keep the necessary materials or facilities in advance.

At the present time, the entire world is facing a biological disaster called the 2019 Novel Corona Virus. It originated from the city of Wuhan in China. The WHO has named it COVID 19. Its first case in India came on 30th January 2020. At that time, to prevent the virus in India, a 21-day lockdown was imposed in the first phase and it was later extended phase wise. So far 169,094,726 people have been affected by the Corona epidemic worldwide, of which 3,512,510 people have died due to COVID-19. So far in India 27,369,093 people have been affected by this epidemic, out of which 315,263 people have died of this biological disaster till 27th May, 2021. Right now a second wave of Corona is going on in India. Many countries including India have discovered vaccines to prevent this epidemic. Efforts to reduce the effects of the epidemic with the vaccine are continuing worldwide. There is a great need to bring awareness related to the prevention of this biological disaster at the rural level in India.

Conclusion

Thus in conclusion, disaster management is a multidisciplinary field. This includes weather forecasting, warning, rescue, relief, rehabilitation and reconstruction. Administrators, scientists, planners, volunteers and communities all contribute to multidisciplinary efforts. Their roles and activities are important before, during and after a disaster. All these activities are complementary and helpful to each other, so it is absolutely necessary to coordinate in it. In the end, the important message is that all kinds of crises are not disasters. If they are gathered together for better planning - preparation and relief and rescue, then the loss from such disasters can be avoided to a great extent in the near future, That is to say, the expression 'information is rescue' also has a meaning here.

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