# Natural Hazards and Disaster Risk Reduction Policies

Loredana Antronico - Fausto Marincioni Editors







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# Natural Hazards and Disaster Risk Reduction Policies

Loredana Antronico Fausto Marincioni *Editors* 





"Natural Hazards and Disaster Risk Reduction Policies", Loredana Antronico, Fausto Marincioni (Eds.) is a volume of the Open Access and peer-reviewed series "Geographies of the Anthropocene" (Il Sileno Edizioni), ISSN 2611-3171.

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*Cover:* A woman shovels mud from her driveway in the aftermath of the October 2010 debris flow that affected the Province of Vibo Valentia (Calabria, southern Italy).

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ISBN 978-88-943275-2-6

Vol. 1, No. 2, December 2018

# **CONTENTS**

Preface	8
Introduction	11

# Section I

# **Disaster Risk Perception**

1.	Environmental perceptions: participatory methodologies for the assessment of social vulnerability to floods in two communities in Mexico	
	Gustavo Manuel Cruz-Bello, Miriam Alfie Cohen	16
2.	The urban political ecology of flood vulnerability in the core area of Ibadan Metropolis, Nigeria	
	Rafiu O. Salami, Jason von Meding, Helen Giggins	36
3.	People, places and volcanoes. A study on risk perception in the Azores (Portugal)	
	Isabel Estrela Rego, Sofia Morgado Pereira, Mariana Paim Pacheco	51
4.	Geographical and historical processes of human settlements in the Etna Region. A person-place relation approach	;
	Salvatore Cannizzaro	69
5.	Humankind and Risk: a difficult history Piero Farabollini, Francesca Romana Lugeri, Nicola Lugeri	88

# Section II

# **Disaster Planning and Management**

 6. Anthropology of the Vesuvius Emergency Plan: history, perspectives and limits of a dispositive for volcanic risk government *Giovanni Gugg* 105

7.	Inclusive Disaster Planning. Evidences from municipal case studie in the Marche Region, Italy	
	Beatrice Gatto, Susanna Balducci, Fausto Marincioni	124
8.	Post-disaster dynamics in inner areas. An Italian hypothesis for transition management	
	Nora Annesi, Annalisa Rizzo, Matteo Scamporrino	141
9.	Increase social and physical resilience to disaster through post- disaster planning: The case of Cascia Municipality <i>Federica</i>	
	Appiotti, Mattia Bertin, Francesco Musco	159

# Section III

# Disaster Mitigation and Preparedness

10. UNESCO Global Geoparks: living laboratories to mitigate natur induced disasters and strengthen communities' resilience	al
Charalampos Fassoulas, Mahito Watanabe, Irina Pavlova, Ales,	sia 175
Amorjini, Edoardo Dellarole, Florian Dierickx	1/5
11. Information instead of fatalism: a proposal of a strategy to inform on disasters	n
Jon Cadierno Gutierrez, Justino Losada Gómez	198
12. Re-assessing the role of communication in the aftermath of a disaster: case studies and lesson learned	
Andrea Cerase	213
13. Traditional flood mitigation measures in Mallorca <i>Miquel Grima</i> Joan Rossello	ılt, 243
14. Risk, hazard and disaster in India: a perspective from law and governance	
Binod Kumar	261
The Authors	276

# 14. Risk, hazard and disaster in India: a perspective from law and governance

Binod Kumar<sup>1</sup>

#### Abstract

Fear of disaster in the minds of human beings is as old as human civilization. The fear of disasters has given rise of many mysterious practices among human beings. By the passage of time, man realizes that mysterious practices are not enough to prevent loss in such unforeseen circumstances and they must act in advance to mitigate the loss. Consequently, a systematic approach to study the disaster started. There has been change in the approach from time to time. In ancient India, there was understanding that considered disasters as an act of God and there is limited scope for human intervention to mitigate the same, whereas modern approach to disaster is based on principle that disasters are not the killer rather human obstruction and structures kill the human beings.

Keywords: disaster, governance, India, institution and risk.

## 1. Introduction

'Disaster' has different meanings for different sets of people. The current meaning of disaster has been shaped by the different set of realities and is context specific. Much of the mitigation and preventive efforts in disaster policy is woven around this specific meaning given to 'disasters' in a country. Differences in perspectives as what constitutes disasters are dependent on sense of loss, which varies from one person to other (Collins, 2009, p. 11). Altering status of disaster can also be the result of politics, humanitarian aid (Middleton and O'Keefe 2001 as cited in Collins, 2009, p. 11), state ideology and reporting/under-reporting by media. The concept of disaster has undergone immense changes in India. It was 'disaster risk reduction' in the 1970s that turned into 'disaster mitigation' and 'disaster risk reduction' in 1980s and 1990s respectively. Disaster risk reduction is a broader concept, and it takes development into consideration in disaster mitigation. In current context, it is important that disaster not be looked upon as natural phenomena

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rather as a function of development. Sometimes, disaster is caused by the insufficient development of means to avoid crisis, and sometimes the aspect of development itself become the reason for crisis and ultimately leading to disaster. In this situation, tools like risk assessment, social impact assessment and environmental impact assessment have been employed by development professionals to adjudge the efficacy and impact of development on the community at large. Disaster is a function of human exposure to danger, causing social life, economic and environmental losses, and beyond the community or social concerns. Disaster does not wreak havoc in isolation rather it is combination of hazard and vulnerability. Hazard is extreme events, which have potential to harm human and non-human species whereas vulnerability signifies characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard (UNISDR, 2009, p. 9).

UNISDR defines disaster as "A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources" (UNISDR, 2009, p. 9). Section 2 (d) of Disaster Management Act, 2005 of India says "disaster means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life and human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area".<sup>2</sup>

One theme that is common in every disaster is community's inability to cope up with human, material and economic loss. Another important aspect to study disaster is its causes. Traditionally, disaster has been seen and analyzed within the frame of causation hence there was concept of natural and man-made disaster. However, progress in disaster scholarship with the aid of scientific advancement invalidates the classical categorization of disaster. Moreover, causative factor to classify disaster into natural and manmade, failed to explain the inherent causes of damage and loss after disaster. Hence, no disaster is natural.

<sup>&</sup>lt;sup>2</sup> Section 2(d) of Disaster Management Act, 2005.

## 2. Governing Risk and Vulnerability in India

The geophysical, climatic and demographic condition makes India one of the most disaster-prone countries across the globe. Sixty percent of the landmass of India is prone to earthquake and landslide of different magnitudes and 8% of its geographical area is subject to riverine and flash floods. Thirty major towns with the population of more than half a million each are located in seismic zone IV and V where the earthquake of the magnitude of six or above in the Richter scale is real time possibilities. Climatologically speaking, India is land of contradiction, where northeast India receives the highest rainfall in world; the western part Thar Desert receives scant rainfall, some areas of trans-Himalava are coldest habitat places (Chakrabarti, 2006, p. 4). This wide variation of rainfall and climate makes India vulnerable to several hazards like drought, heat and cold wave that claims lives, flood, hailstorm, cloudburst, avalanche, livelihood and property. India is one of the most disaster-prone regions hence disaster management is vital for development of the country. It is interesting to note that nearly half the century since independence, marked by planned economic development and advancement of science and technology had not initiated any serious intervention for mitigation, preparedness and disaster response in a well-coordinated manner.

In this period, the entire focus of the government had been in disaster relief and rehabilitation. The state government response to the disaster has been in the form of office of the Relief Commissioner within the Revenue Department. At the centre, drought relief Division under Ministry of Agriculture and Cooperation was national nodal authority for disaster management. Later on, various changes have been made in the field of disaster management in Indian context. Apart from the enactment of Disaster Management Act of 2005, which has facilitated the establishment of various institutions, the subject of disaster management has been shifted from Ministry of Agriculture and Cooperation to Ministry of Home Affairs.<sup>3</sup> The change of nodal ministry for disaster management from Agriculture to Home Affairs laid the focus of disaster governance from relief to systematic, comprehensive and holistic approach. Accordingly, states were also advised to reconstitute their Revenue and Relief Department into a dedicated Disaster Management Department to look into every aspect of the disaster to facilitate the smooth disaster governance.

<sup>&</sup>lt;sup>3</sup> Vide Cabinet Secretariat's Notification No. DOC.CD-108/2002 dated 27/02/2002 (GOI, Cabinet Secretariat's Notification No. DOC.CD-108/2002, 2002).

The development of soft law like Yokohama Strategy and Plan of Action for a Safer World, The Hyogo Framework for Action 2005-2015 and Sendai Framework for Disaster Risk Reduction 2015-2030 on disaster management at the international level and disaster events like Latur Earthquake 1993, Super Cyclone 1999, Bhuj Earthquake 2001 and Tsunami 2004 altered the focus from *ad hocism* to integrated and focused approach in disaster management.

Earlier, focus was on relief and rehabilitation approach, which changed to mitigation, preparedness, response and recovery in the process of disaster governance. The reason behind the shift was the hard realization that disasters are eating gains of developments. This policy shift was recognized in Tenth Five Year plan and it was acknowledged that traditional disaster management has the excessive focus on calamity relief under non-plan expenditure. It also acknowledges that relief alone is not sufficient to mitigate the disaster. It is necessary to make this exercise a continuing progress and development work must be sensitive to disaster risk reduction. Therefore, it is necessary to deal with the disaster from the perspective of development to reduce human, nonhuman and material losses. Only after integrating the current risk into the developmental plan, we can think of sustainable development and resilient community.

Based on the philosophy of sustainable development and building resilient community, holistic disaster governance is need of hour. The concept of holistic disaster governance takes cognizance of development, environment, problems of poverty and resilient structure to provide effective disaster risk reduction framework along with role of multiple stakeholders. The idea of disaster governance is based on the fact that natural hazards are inevitable however every natural hazard cannot become disaster if hazards and risks governed properly. The term "disaster governance" also recognizes the role of galaxy of organizations to tackle disaster, which includes state, market and civil society. Traditionally, disaster management has been exclusive domain of state barring few non-state actors. Nevertheless, the changed architectural arrangement of landscape of governance recognized the role of market in disaster management.

As the idea of disaster governance is still in the nascent phase and world keep learning how to govern disaster after every incident. Although, disaster cannot be fully prevented but loss by the disaster could be mitigated through appropriate governance measures. Every disaster is an opportunity to revise strategies to mitigate the loss in the future disaster. Where mega international disaster like Tsunami 2004 taught us how state need networked disaster governance in case of international and inter-provincial disaster whereas Mumbai floods taught us the lesson as how urban local governance needs to prepare itself to the onslaught of urban floods. The national level agency: National Disaster Management Authority (NDMA) needs to prepare appropriate governance strategies along with national and state plan for disaster management. Today, a large number of technology and strategy is available across the world and it is national agencies for the disaster management, which is responsible for adapting and localizing the available strategies to facilitate disaster governance.

# 3. Historical Overview of Disaster Governance in India

# 3.1. Ancient Measures

The modern idea of classifying disasters into binary of natural and man-made owes its origin in ancient understanding. The Sanskrit the word "nipata", "pidana", "apatti/vipatti" and "vyasana" are the words, which were used to denote the disaster. The word "vyasana" denotes incident, which is caused by ill fate. As per archaic-understanding, disaster cause because of ill fate of human being. By the passage of time, systematic understanding of disaster started and Kautilya classified disasters into two broad categories: Daivam (Natural) and Manusam (Man-Made). Daivam means "divine in nature" and may be considered as parallel to the western conception of "act of God". Kautilya in his fourth book discussed eight types of "Daivam" or natural calamities which are: They are fire (agni), flood (udaka), epidemics (vyadhi), famine, (durbhiksa), rats (musaka), beasts (vyala), snakes (sarpa) and demons (raksamsi). In the view of Kautilya, "daivam" cannot be controlled or handled by human beings as he considers it as an act of divine. Kautilya describes "manusavyasana" as an act of misfortune however he considers role of human beings in controlling this. He talks about the role of a king in case of calamity in his state. Considering nature of the people to protect properties and life of other people and nation, Kautilya proposed punishment for the people for not serving in these situations in the Arthasastra (Bapat, 2014, p. 14).

In 'Arthasastra', Kautilya has considered man-made calamities as a disaster. During the period of Kautilya, apart from war and the agitation of subjects, other man-made disasters did not exist. Hence, Kautilya dealt only with war and internal agitation. In *Vyasanadhikarikam* that deals with calamity has broadly divided calamities in two groups: (1) Internal Agitation (2) External agitation (8.2.2-3). The result of these two calamities is four threats to the nation, which are: (a) external threat supported internally (b)

internal threat supported externally (c) external threat supported externally (d) internal threats supported internally (9.5.3) (Bapat, 2014, p. 18).

The above measures to tackle disaster in ancient period suggest, *Arthasastra, which* is an old text on Indian polity provided robust framework of disaster governance.

#### 3.2. Medieval Measures

The crisis and contingent situations were dealt with *ad hoc* approach in medieval India. Although, historians documented numerous disasters in medieval India but there has been absence of a pattern in response to it. The historical account of the disaster in medieval India is largely available for famine and epidemic. There is a dearth of literature on relief work undertaken in this period except for famine. The famines in India have been regular phenomena and Roy (2014) assumes that largely it is due to environmental and geographical factors. The administration of Muhammad bin Tughlaq under Tuhlaq dynasty did not offer relief to the starving residents during the famine in and around Delhi. The historical account suggests Peshwa Sawai Madhavrao provided relief during Deccan famine of 1791-92. The relief measures to tackle famines included the restriction on export of food grains and importing food grains to augment availability in the local market. However, evidence of relief in case of disaster is too scanty to judge the real efficacy during medieval India.

#### 3.3. Modern Measures

#### 3.3.1. Colonial Initiatives on Disaster Management

The systematic response to disaster started in colonial India. To deal with the recurrent problem of famines, they constituted Famine Commission 1880 to study and suggest measures to tackle famine. The Commission concluded availability of surplus food grain in India and indicated to have administrative set up to ensure availability in all regions. The Commission also suggested numerous measures, guidelines and regulations on how to respond to famines and food shortages and it came to be known as Famine Code. The Code was finally approved in 1883 during the viceroyship of Lord Ripon. It had to wait for three years, as predecessor Lord Lytton was not ready to take any initiative to solve the problem of food shortages in India. Jean Dreze studied the pre and post-famine code situation in India and has concluded that barring few large-scale famines instances; code was effective in ensuring relief. Dreze explains these intermittent failures by four factors: "(1) Failure to declare famines (2) excessively punitive character of famine restrictions such as wages for public works (3) policy of strict non-interference with private trade (4) natural severity of food crises" (Dreze, 1991, pp. 32-33). There was the threat of famine in India due to its geographical and ecological situations, but in the post-famine code Bengal Famine of 1943 was the most devastating. The Famine Commission in 1880 underlined loss of wages to agricultural workers and artisans as substantial causes of famine in India. It also suggested the strategy to create jobs for the marginal population to tackle famine and relied on public works to engage them. The Famine Code has been updated from time to time in post independent India and subsequently renamed as "Scarcity Manuals".

The Indian Famine Commission (1880-1901) emphasized speedy relief, the provision of fodder for cattle, prompt remission and suspension of land revenues, swift loan distribution, the introduction of fodder camps, and gratuitous relief for women, children and the destitute. So, famine commissions during British period were exemplary in addressing the immediate need of the household to arrest a large number of deaths in colonial India (Ray-Bennett, 2009, p. 281). The reliefs provided under famine commission were of short term, and *ad-hoc* in nature as the perception of disaster was based on the idea of natural events. Moreover, there were little effort on the part of the government to tackle vulnerability and building capacity to the community. The funds allocated under recommendation were largely used for structural measures rather than non-structural measures such as capacity building. Besides, there was the absence of integrated approach to disaster management and treated every disaster as an isolated event.

Moreover, British administration had activity based relief departments, which used to be functional in the post-disaster scenario. The flood control through embankments and drainage was next uphill task executed by colonial powers in India. On the one hand they constructed embankment and drainage and made the rules for maintenance of the same. The regulation of 1793, Embankment Regulation (VI of 1806), regulation XI of 1829, Act XXXII of 1855, Act VI of 1873, Act II (B.C.) of 1882 were directly related to flood control in India enacted by colonial powers in India. Where British measures to tackle drought was relief centric; the flood control through embankment and drainage composed of mitigation and preparedness measures. The regulations and act related to flood control suggest the existence of robust regulatory and governance framework during British period. The architecture of disaster governance started by British continued till enactment of Disaster

Management Act, 2005. Before enactment of this act at national level, State Relief Commissioners were working under Central Relief Commissioner (GOI, 2011, p. 55).

The institutionalized response to disaster started with the establishment of revenue, agriculture and commerce department. In 1881, department of agriculture was established as a separate department on the recommendation of famine commission which was upgraded as Ministry of Agriculture in 1947.

#### 3.3.2. Post-Colonial Initiatives on Disaster

Carrying the colonial legacy, the Ministry of Agriculture became the nodal agency to deal with disasters in India even after independence. To facilitate better governance, damage assessment and relief due to natural calamities was brought under its purview in 1969. In 1974, the issues related to loss of human life and relief for drought, scarcity or famines were transferred from department of food to department of agriculture (Kapur, 2005, p. 4551). Moreover, there has been a provision in every five-year plan under "Irrigation Command Area Development and Flood Control". Besides, relief department has also been active throughout the period to facilitate activity based disaster response (GOI, 2011, p. 55).

In this way, Department of Agriculture became nodal agency responsible for the matters relating to floods and droughts as these were directly related to agriculture. Besides flood and drought, other disasters were dealt with fragmented approach without specific pattern in governance. In the case of high casualties, all the ministries were supposed to work concertedly. The traditional awareness of disaster management was limited to the idea of relief, which was essentially a non-plan.

The modern perspective on disaster management started with establishment of National Disaster Management Division in 1994 under Ministry of Agriculture. Later on, it was rechristened as National Centre for Disaster Management in 1995. In pursuant to better coordination of relief, the subject of coordination of relief after disaster was transferred from Ministry of Agriculture to Ministry of Home Affairs<sup>4</sup>. However, coordination of relief measures after drought remained with Ministry of Agriculture. The constitution of a high-powered committee in 1999 ushered paradigm shift in disaster management in the country. It led a shift from relief centric measures

<sup>&</sup>lt;sup>4</sup> See for details, Cabinet Secretariat's Notification No. DOC.CD-108/2002 dated 27/02/2002.

to a holistic approach in disaster management in India. Later on, National Centre for Disaster Management was converted into National Institute of Disaster Management (NIDM). The establishment of NIDM at the national level provided impetus to states to constitute disaster management centres within state institute of public administration (GOI, 2011, p. 55). Prior to this, Disaster Management Institute at Bhopal with a clear focus on industrial disasters was already functional, which was established in the wake of Bhopal gas tragedy. Recognizing the importance and gravity of the issues around disaster, 10<sup>th</sup> Five Year Plan carried an exclusive chapter on Disaster Management. In the year 2002, Disaster Management Bill was forwarded to Parliament with a view to develop legal framework for disaster management in the country.

The government attention to disaster in India came into limelight not because the number of disasters had increased or due to greater compassion towards dead and vulnerable but because of international pressure. The UN resolution "to reduce through concerted international action... the loss of life and disruption caused by natural disasters" was issued on 22<sup>nd</sup> Dec 1989. Besides, the decade of 1990 and 2000 was declared as "International Decade for Natural Disaster Reduction". The response of India has been slow on the issue of disaster despite concerns about the disaster at international level. The "World Conference on Natural Disaster Reduction" which took place in Yokohama in 1994 evoked immense interest towards disaster management in India (Kapur, 2005, p. 4455).



Figure 1 - Legal And Institutional Framework Under Disaster Management Act, 2005; Source: Disaster Management in India (GOI, 2011, p. 58).

Before enactment of specific law on disaster management by the central government in 2005, central relief commissioner was a nodal officer to coordinate relief operations through Crisis Management Group. The National Crisis Management Committee (NCMC) used to give directions to the Crisis Management Group (CMG) (Das, 2012, p. 43).

The legal framework for disaster governance in India works through the cluster of laws. Where Disaster Management Act, 2005 facilitated the establishment of institutions at national, state and district level along with financial mechanism to deal with disaster; laws like National Building Code 2005, Coastal Regulation Zone Notification, 1991 provides a firm basis to reduce risk and mitigate the impact of disasters.

Disaster Management Act, 2005 is the only act, which directly deals with disaster. The legal responses to disaster are dealt through the jungle of laws. The most explicit connection to disaster law apart from Disaster Management Act, 2005 comes in the form of environmental laws, laws relating to relief and compensation and law relating to insurance. There has been the immense potential of environmental law to reduce disaster risk (Kapur, 2005, p. 4552). There are numerous laws that have potential to reduce the disaster risk. The law germinates through causation of disaster: like industrial disasters are dealt with different set of laws, environmental and climate induced disaster are tackled through environmental laws and compensation after disaster dealt with insurance laws and the most recent and last category relates to direct legal response to the diverse disastrous occurrences and came in the form of *Disaster Management Act 2005*.



Figure 2 - Paradigm Shift in Disaster Management in India after Disaster Management Act, 2005.

#### 4. Disaster relief in India

The disaster reveals a special relationship between state and its population. The state intervention in the disaster is important because people become victims of actions which they are not responsible for and have no control over the incident. Historically, it has been a duty of the state to come to rescue the people affected by the disaster. However, there has been change in the legal position of the victims of the disaster. Where they were subject to moral responsibility in earlier times, now their rights have been recognized not only under international law but also under the municipal legal system. Even after recognition of the rights of victims of disaster, there is absence of legal entitlement to the victims of disaster. Hence, state enjoys the moral duty to take care and provide relief to victims of disasters in India. The recipients of disaster relief in calamity claim their innocence and victimhood. The spontaneous relief provided by the state takes care of the local moral economy and tries not to subsidize able-bodied persons. In drought-affected areas, the state provides food for work as the relief to help victims. Therefore, disaster relief is not a constitutionally mandated right nor is recognized by law and is not justiciable in the court of law. The moral responsibility of the state is equally important in providing assistance in disaster as many times moral duties precede legal mandates of the rulebook (Chhotray, 2014, p. 218). However, there is need to make it a right based approach to reduce the chances of double victimization of victims of a disaster.

#### 5. Politics of disaster in India

There is always a debate to declare the calamity as 'national calamity' or 'national disaster' whenever severity of disaster is high. However, there is nothing in the manual or statutes to declare a disaster as national disaster howsoever big it may be.<sup>5</sup> None of the disasters has been declared as national calamity/disaster till date. But it is an expression used in common parlance and whichever party occupies the position of opposition at the national level always asks the ruling party to declare a disaster as 'national calamity/disaster'. The philosophy behind the absence of such nomenclature lies in the fact that India does want to project her with a begging bowl or be

<sup>&</sup>lt;sup>5</sup> http://www.dnaindia.com/india/report-dna-special-the-secret-why-no-tragedy-can-be-a-national-calamity-1858347.

seen in distress and seek the help of other countries. Declaring a disaster as 'national disaster' gives leverage to big economic powers to show their benevolence and big brotherly attitude. The architects of our Constitution and subsequently the Disaster Management Act 2005 wanted to shield India from such external influences. Moreover, in the absence of the provision to declare a disaster as 'national disaster/calamity,' there is enough arrangement within the Disaster Management Act, which permits centre to finance the relief and rehabilitation efforts of the concerned state through National Disaster Response Fund (NDRF). Once the state declares the onslaught of disaster as of 'severe nature'; state qualifies to get fund from National Disaster Response Fund (NDRF) for relief and rehabilitation work. In the absence of such categorization by the central government, state government bears all the expenses under the head of relief and rehabilitation through State Disaster Response Fund, which comprises fund from the central government and state government. As a matter of fact, there is no standardization/benchmark to assess the severity of disaster in India. Oftentimes, it becomes the contested ground between central and state government when same party is not ruling the centre and state. Correspondingly, we need to put standard benchmark or parameter to provide the fund to facilitate the relief and rehabilitation efforts of the state in a proper manner.

#### 6. Bridging Disaster and Development through Judicial Response

Disaster and development has been elaborately discussed by the Supreme Court of India in the case of *Tehri Bandh Virodhi Sangharsh Samiti and Others v State of UP*<sup>6</sup> and *Narmada Bachao Andolan v Union of India*<sup>7</sup>. In both the cases, the argument produced by court was similar and facilitated the construction of the dam. In these cases, fundamental rights of the people affected by the projects under Article 21 of the constitution were in question. Besides, petitioner also contended that construction of dams in those areas would lead to ecological disaster. However, court contended that stalling a project at such an advance stage would compromise the development of nation in the garb of ecological disaster.

Additionally, the court also added that even for major changes in the project, there have to be the compelling reasons to do so. "Through these cases court also arbitrates between human rights, national laws and regulations relating to national security and national economic development.

<sup>&</sup>lt;sup>6</sup> 1992 Supp (1) SCC 44.

<sup>&</sup>lt;sup>7</sup> 2000 (10) SCC 664.

The government contended that these areas have very low productivity level and in the case of Sardar Sarovar Project there is absence of actual forest as those has been depleted by the passage of time. Court also contended that displacement of person would not *per se* result in the violation of their fundamental or other rights. The real issue what has to be ensured that their rehabilitation at a new location is better off than what they were. Court accepts that project promises better assimilation of marginalized communities through their betterment and progress. Court also added, merely because there will be change is no reason to presume there will be the ecological disaster. Accepting the argument of petitioner that there will be change in the environment, the court reiterated it would be wrong to presume the construction of the large dam will result in ecological disaster" (Visvanathan, 2000, p. 4179).

In the case of *N.D. Jayal and Anr vs Union of India and Ors<sup>8</sup>* Supreme Court opined that the construction of dam would obviously change the environment but it is not correct to presume that dam will result into an ecological disaster. Merely because there will be a change is no reason to presume that there will an ecological disaster. The judgment of this case also underlines that adherence to the principle of sustainable development is *sine qua non* for the maintenance of symbiotic relationship between environment and development. The concept of sustainable development has to be treated as an integral part of 'right to life' under Article 21. The principle of '*intergenerational equity*' could only be ensured through compliance of principle of sustainable development.

In this backdrop, disasters imperil development at the same time development can itself create new risk. There are enough examples from the realms of development in India, which contributes to disaster risk. The rapid urbanization, growth of squatters and informal settlements in urban areas by internal migration from the countryside has made urban areas more vulnerable to disaster risk as these settlements are located somewhere in prohibited zones, steep slopes, floodplains or adjacent to hazardous industrial units. Local livelihoods are endangered by the regional impact of climate change and environmental degradation. The frequency with which India is facing natural disasters should ensure that disaster risks are at the forefront of the development program. Future disaster risk management should be integrated into the development plan to promote the concept of sustainable development. Integrated disaster risk management should run along side the development planning.

<sup>&</sup>lt;sup>8</sup> 2003 Supp (3) SCR 152.

#### 7. Conclusion

The definition and typology of disaster are based on based on existing scholarship in disaster study. There have been changes in the meaning of disaster from time to time. Where earlier disaster was seen as act of God, of late, it is being considered as an act of the state. The culpability of the state is seen in the law, as state is not able to ensure the compliance of laws. Besides, law can also regulate the creation of new risk in the process of development. Although, invulnerable development reduces the risk and save the life of the people but sometimes development itself creates risk and makes the society disaster prone. Hence, the notion of disaster has always got the attention but an approach to manage the same has been changing regularly. The institutional response to disaster governance in India started with constitution of famine commission, which continued till recently. The law and rules governing the disaster management comprise cluster of laws drawn from host of issues. However, the specific law Disaster Management Act, 2005 paves the way for a paradigm shift in approach of disaster governance in India. It provides legal and institutional framework for disaster governance by delineating the roles and responsibilities of different stakeholders. It also aims to inculcate resilience not only to the community but also to the institutions working for disaster governance.

Despite enactment of the specific law on disaster management, there has been the issue which is yet to be resolved like standardization of assessment of loss, declaration of national disaster and reduction of arbitrariness in disbursal of funds to the state by the central government for instant disaster relief. The institutions responsible for development are remotely connected to the institutions responsible for governance of disaster. Hence, there is an imperative to bridge this divide vis-à-vis disaster governance. In order to reduce the disaster risk, institutions do not need to work only on the existing risk rather it should reduce the creation of new risk by developmental processes.

#### **Funding resources**

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

#### References

Bapat, A., 2014, "Disaster Management in Kautilya Arthasastra", *aWEshkar*, 17 (1), 13-21.

Chakrabarti, P.G., 2006, May, "Emerging Framework", *Yojana*, 50, pp. 1-60.

Collins, A. E., 2009, Disaster and Development, Routledge, Oxon.

Das, P., 2012, "Disaster Management in India: Policy Review and Institutional Structure", *Asia-Pacific Journal of Social Sciences*, 4 (1), 37-52.

Dreze, J., 1991, Famine Prevention in India. In: Dreze, J., Sen, A., Hussian, A. (Eds.), *Political Economy of Hunger: Famine Prevention*, Oxford University Press, pp. 32-33.

GOI, 2002, Cabinet Secretariat's Notification No. DOC.CD-108/2002/27 Feb. New Delhi, India: Ministry of Home Affairs.

GOI, 2005, Disaster Management Act, Government of India.

GOI, 2011, *Disaster Management in India*, Government of India, Ministry of Home Affairs. New Delhi: Ministry of Home Affairs.

Kapur, A., 2005, "Insensitive India: Attitudes towards Disaster Prevention and Management", *Economic and Political Weekly*, 40 (42), 4551-4560.

Kumar, M., 2013, July 8, *Dna special: The secret - Why no tragedy can be a National Calamity.* Retrieved from dnaindia.com: http://www.dnaindia.com/india/report-dna-special-the-secret-why-notragedy-can-be-a-national-calamity-1858347. Last access: 15/06/2018.

N.D. Jayal and Anr vs Union of India and Ors, 2003, Supp (3) SCR 152.

Narmada Bachao Andolan vs Union of India, 2000 (10) SCC 664.

Ray-Bennett, N.S., 2009, "Multiple disasters and policy responses in preand post-independence Orissa, India", *Disasters*, 33 (2), 274-290.

Tehri Bandh Virodhi Sangharsh Samiti and Others vs State of UP, 1992 Supp (1) SCC 44.

UNISDR, 2009, UNISDR Terminology on DRR, UN, UNISDR. UNISDR. Visvanathan, S., 2000, Nov., "Supreme Court Constructs a Dam", *Economic and Political Weekly*, 4176-4180.

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ISBN 978-88-943275-2-6