



Disaster Management- Case Studies in Chennai

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ABSTRACT

The disasters that occur are sometimes man made, and sometimes natural. The disasters come in the form of tsunamis, earthquakes, floods, cyclones, drought and industrial. The tsunami on December 26, 2004 was a major disaster in India that affected mainly Tamil Nadu, Kerala, Puduchari and Andhra Pradesh and Andaman Nicobar Islands. The natives in Andaman and Nicobar Islands smelled and forecast the event even before scientists and technology by using their indigenous knowledge. The Bhopal gas tragedy was happened three decades before and it was, till then, India's worst industrial disaster. In 2005 Maharashtra floods were a major disaster and in 2008 cyclone Nisha caused major floods in Tamil Nadu while Koshi floods happened in North Bihar and floods at AP, Karnataka, Delhi, Orissa. In 2009, over 252 districts in ten states were affected by severe drought. In 2012 severely floods at Assam in 2013 Uttarakand floods, in 2014 Jammu and Kashmir floods, and 2015 west Bengal floods all this disasters are managed by National Institute of Disaster Management (NDMA). This paper focuses its attention on disaster management and case studies and prevention. The data collection is collected through primary and secondary sources and random sampling method is used.

KEYWORDS :

Introduction:

Chennai is a metropolitan city, cosmopolitan in distribution of southern Indian, and it was severely affected by floods in November 2015. It is 100% percent man made disaster since there isn't a system for the water to flow out. The electrical system is under ground. Chennai, one of the fast growing metros, is likely affected by the lack of drainage mainly due to uncontrolled developments of concrete spaces, encroachment of major drainage channels, shrinking of marshlands, etc., though urbanization the vital factor of response for the flood risks is coupled with the climatic variability and ecological imbalances. In this incidence at least 347 people are died (official as of 10 December) and 25,912.51 crore (US\$ 3.91 billion) property has damaged. (Official estimates; unofficial estimates of over 50,000 crore (US\$ 7.5 billion).

Global Level:

The economic impact of disaster can generate large losses that disrupt long-run economic growth trajectories. The loss history of Latin America and the Caribbean from 1975 to 2002 as a consequence of natural hazards. (Stuart Miller, Kari Keripi, 2005, p.4). Activities in one corner of the Globe may cause some impact on other corner of the Globe. The disaster that affected since 1988 to till day 2016 any are manmade disasters. Tsunami (Japanese word for giant waves) is caused as result of earthquake due to megathrust beneath the sea bottom. It creates waves that spread radically. A major earthquake of great intensity measuring 9 on Richter scale struck in the Indian Ocean having epicenter 3.7° N latitude and 95° E longitude off the west coast of Sumatra Island at 06.00 hours on 26th December, 2004. In 2000 there were ten earthquakes within four hours in Sumatra and six in Nicobar. The United States Geological Survey (USGS) was the first organization to flash about the Sumatra earthquake its magnitude, epicenter. The Sumatra Tsunami affected the vast geographic region extending from Indonesia and nearby Islands of Andaman, Nicobar, Sumatra, tip of Thailand to Sri Lanka, India and even the far off Somalia (Senthil Vadivel and S. Bhupaththi Rav, Pp. 83-84)

Disaster Management and Finance:

In light of mitigation and prevention measures, the bank must choose to manage residual risk using internal mechanisms, to use transfer mechanisms available in the insurance and capital markets, or to manage risk using some combination of these options. Managing the risk in-house could require a rigorous assessment of the effectiveness of existing disaster-related loan provisions.

Shashidhar Reddy, former NDMA vice-chairman who headed the expert panel, said that since the MoUD has a major role to play in urban infrastructure, it can coordinate and integrate efforts to ameliorate the impact of floods. Five years after the 2005 Mumbai deluge, an expert panel of the National Disaster Management Authority (NDMA) came up with the first ever-detailed national guidelines management

of urban flooding. The document made a distinction between flooding and urban flooding, describing the latter as a separate phenomenon, which needs to be dealt by an urban flooding unit under the Ministry of Urban Development (MoUD). This despite the fact that the Ministry of Home Affairs had in July 2012 issued orders designating the MoUND as the nodal ministry for urban flooding.

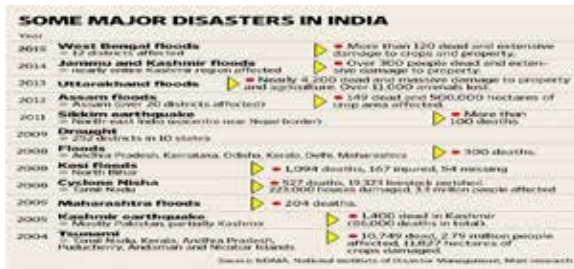
Reddy pointed out that flood management is not only about rescue and rehabilitation but also about prevention, preparedness and mitigation which can be coordinated by the MOUD cities need to have rain gauges every 4 sq km to transmit data in real time. Doppler radars, and an institutional mechanism for more immediate-term, localised forecasts, it would have had three to six hours lead time for warning people, evacuating them, diverting traffic and rushing rescue teams," he said. He added that considering the fact that by 2050, a majority of the 1.6 billion project population will be in urban areas, the country can no longer ignore its fragile urban ecosystem that constantly disregards land use classification (Shalini Nair, 2015). An outlay of Rs 52,839 crore, which is 247 per cent more than the previous plan, has been proposed for the Home Ministry in the draft 12th Five Year Plan under National Development Council (NDC). The Home Ministry has been allotted Rs. 3360 crore for disaster management (<http://www.oneindia.com>).

Chennai, one of the fast growing metros is likely affected by the lack of drainage mainly due to uncontrolled developments of concrete spaces, encroachment of major drainage channels, shrinking of marshlands, etc., Through urbanization, the vital factor of response for the flood risks is coupled with the climatic variability and ecological imbalances. In November, however, the region had its "highest rainfall in 100 years". According to Anurabha Ghosh, chief executive of the Council on Energy, Environment & Water and research group said, "this is the highest rainfall in the 100 years". Areas like Mylapore in South Chennai and Perambur in North Chennai have been submerged in rainwater. Immediately, the Modi government released 950 crore towards relief and restoration work in Tamil Nadu, which faced extensive damage to life and property in the northeast monsoon (Dharani Thangavelu, 2015).

As the death toll in rain-related incidents touched 188, Chief Minister Jayalalitha reviewed the situation and deputed ministers to inspect the affected regions. Half-yearly exams in schools, which were to have begun on December 7, were postponed and schools were closed.

Some of the hospitals at Chennai postponed their operations and the patients at ICU suffered a lot due to power cut and treatment delay during Floods. All flight operations at Chennai airport have been partially suspended until further review and a number of flights have been disrupted as waters inundated the runway and the tarmac.

Airport officials said one flight, which had left Colombo returned. SpiceJet and Indigo said that saying the airfield had been closed due to flooding (**Chennai rains: IMD predicts heavy rains in TN, 2015**).



Source: **NDMA, National Institute of Disaster management, Mint research**

Institutional mechanism expected output Creation of State Department of Disaster Management: Department of Relief & Rehabilitation to be designated as Department of Disaster Management with enhanced area of responsibility to include mitigation, prevention and preparedness. Setting up State Disaster Management Authorities: (1) state Disaster Management Authority to be headed by the Chief Minister. (2) The Authority to lay down policies and monitor mitigation, prevention and preparedness as also oversee response (**Disaster Management, Govt. of India, 2004, p.47**)

Disaster Mitigation/ Preventions: Expected outputs Disaster mitigation/ prevention to be mainstreamed into the development process: (1) Each Ministry/ Department which has a role in mitigation/ prevention will make appropriate outlays for schemes addressing mitigation/ prevention (2) where there is a shelf of projects/ schemes, projects/ schemes contributing to mitigation to be given a priority. (3) Wherever possible schemes/ projects in areas prone to natural hazards to be so designed as to contribute to mitigation, and preparedness. (4) Projects in vulnerable areas/areas prone to natural hazards to be designed to withstand natural hazard (**Disaster Management, Govt. of India, 2004, Pp. 47-48**).

Definition of Disaster: planned steps taken to minimize the effects of a disaster, and to be able to proceed to business continuity stage.

There is no country that is immune from disaster, though vulnerability to disaster varies. There are four main types of disaster



A Disaster Expert’s 13-Point Plan, Regarding Government of India on Disaster Management.

Hari Balaji, consultant advance advices to the public.

1. Stay indoors as heavy downpours are expected
2. Stock up on necessary medicines for cold and fever and prescribed medicines (if any)
3. Store enough water bubble top cans, dry food, bread loaves, and snacks to last for a week.
4. Have glucose and Electoral packets handy.
5. Have your cell phone battery charged to full (if possible get walkie talkies as there is possibility of signal shut down).
6. Keep two torch lights with an extra set of batteries
7. Have three dozen candles and two packets of matchsticks handy.
8. Get blankets and shawls for all family members.

9. Put 3-4 camphor pellets in water cups and place them near window and all corners of the room to avoid mosquitoes. A couple of cloves embedded in a half cut lime also works for chasing away mosquitoes. Dengue fever is caused by mosquitoes that come in the daylight
10. Keep a transistor radio with an extra set of batteries so you can listen to important announcements.
11. Have all your important documents and valuables in one packet (easy to carry immediately)
12. Have all emergency contact numbers written down in a pocketbook.
13. Identify the best spot on your terrace/ roof to climb up to if the water level increases, or the highest building in your area where you can go to till external assistance from Emergency Support Services arrives.

They have announcements to All States for Collecting Relief Materials

Items Required:

- Packaged foods
- Water
- Milk powder
- New Blankets
- Biscuits
- Dry Snacks
- Candles
- Kerosene
- Match boxes
- Charged light
- Dry cloths
- Eatables

Affects of Disaster: Hundreds of families that were living along Adyar River and other low lying areas are being evacuated as many water bodies have ruptured their banks. Transport services have been affected in the worst manner as roads are inundated and many areas in the city have been sealed off. The traffic is being diverted, thereby creating blocks.

Suburban train services were also cancelled temporarily. Amidst situations like these, hope is visible in the actions of individuals helping one another in the best possible manner. And one such sight pleasantly surprised the residents of Chennai on the morning of Nov. 11.2015. Several roads in the city had been severely damaged due to the heavy rains. But three policemen decided to fight against the weather and help commuters reach their destination by volunteering to fill the pothole themselves. Passers-by on the stretch near Phoenix Mall in Velachery area of South Chennai saw the policemen carrying bricks and filling up the holes. They were using an iron bar to break the bricks and make the surface smooth.

Chennai, one of the fast growing metros is likely affected by the lack of drainage mainly due to uncontrolled developments of concrete spaces, encroachment of major drainage channels, shrinking of marshlands, etc.. Though Urbanization, the vital factor of response for the flood risks is coupled with the climatic variability and ecological imbalances. Chennai, State capital of Tamil Nadu lies in the Eastern Coast of South India where three watercourses meanders through it namely, Coolum River, Adyar River and Buckingham Canal. Chennai is the fourth largest Metropolitan in India having a total population of nearly 47 Lakhs 2 with a growth rate of 13% and density of 26903. Within a century, Chennai has grown 8fold times in population (**Ar. K.Lavanya1, 2012**).

City is drained by those 2 rivers in addition to many major and minor drainage channels through Buckingham Canal to Sea. The city is also having more than 50 Temple tanks in addition to natural water bodies to capture floodwater and acts as ground water recharging wells. Chennai also has Pallikaranai swamps, Madhavaram and Manali jheels, Adyar & Couum Estuaries as a wetland sources apart from natural & manmade water bodies.

Causes of Chennai Floods: Chennai – is not an exceptional one from other metros, which is suffering due to rapid urbanization. It is also contributing with the increase in floating population every year,

as it is a hub of all major economical activities. The following are the factors, which hamper the living Chennai due to floods though it can be categorized broadly under changes in climate, & micro-regional environmental factors. Each factor is dealt in detail in the subsequent clauses.

1. It is manmade disaster,
2. No outgoing water,
3. All the infrastructures are build in water (leaved).

IDB’s Risk Management Approach in the Dominican Republic

The IDB’s risk management approach in the Dominican Republic (Program 1408/OC-DR) is notable because of its focus on disaster risk management and prevention. Although the effectiveness of the program was altered by subsequent legislative changes, the original focus consisted of three components.

Insurance is an issue for the poor class of citizens and small trader who cannot afford to buy it. Hence, a Net Cat Pool is ideally for protecting this vulnerable class. For the insurers, a pool can be viable only if the premium are adequate, “said KK Srinivasan, former Member, Insurance Regulatory and Development Authority (IRDA). Heavy rains and flash floods ravaged Chennai with initial estimates suggesting a loss of Rs 15,000 crore. However, insured losses could be a fraction of this amount, possibly less than 10 per cent of the total losses. This means poor people and up suffering huge losses, which otherwise, insurers would have paid up.

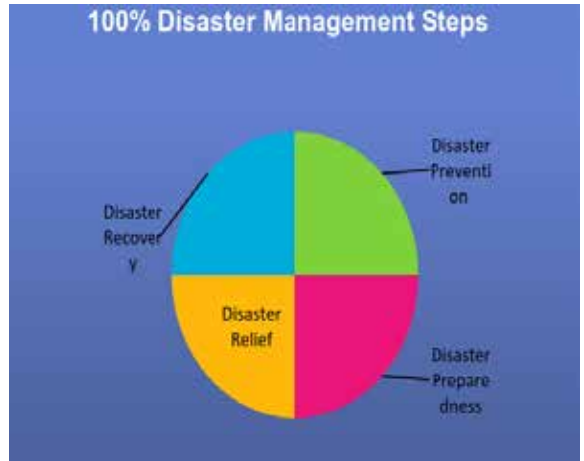


Disaster Management information System (DMIS):

The Disaster Management Information System is a civil society initiative supported by socially conscious institutions and individuals, companies and organisations. The system was launched by SRISTI (Society for Research & Initiatives for Sustainable Technologies and Institutions) on the 18th of January 2002 at Indian Institute of Management, Ahmedabad, Gujarat, India.

SRISTI participated in the relief and rehabilitation work in kutch. But the relief work suffered immensely due to lack of information and proper planning.

Chart for Disaster Management



Disaster Prevention:

1. Natural disasters particularly can be prevented not all the disasters, but the risk of loss of life and injury can be mitigated with:

- (a) Good evacuation plan
- (b) environmental planning
- (c) design standards

2. Hyogo framework adopted by 168 governments a 10 year global plan for natural disasters risk reduction

3. It offers guiding principles, priorities for action for disaster vulnerable communities.

Disaster Preparedness:

1. Preparedness is the main weapon way of reducing the impact of disaster
2. To minimize loss of life and damage by removing people and property from a threatened location to rehabilitation location.
3. Community based preparedness and management should be high priority in physical therapy practice management;

Disaster Relief:

1. Disaster relief is a multipurpose agency to reduce the impact of disaster
2. Its long term results and relief activities include: (a) Providing temporary shelter (b) emergency health care (c) rescue (d) relocation (d) providing food and water (e) preventing disease and disability repairing vital services such as telecommunication and transport.

Disaster Recovery:

1. Recovery activities include rebuilding infrastructure, healthcare and rehabilitation.
2. These should blend with development activities
3. The development activities are building human resources for health and developing policies and practices to avoid similar situation in future.

Administration and Organization:

Risk management must be implemented through existing administrative channels that may be characterized by appropriate levels of centralization and decentralization. High local autonomy allows localities to leverage local knowledge and expertise to allocate resources. Disaster risk management efforts coordinated at a higher level should return decision making power and resources to the local level, particularly for mitigation activities. In instances of high centralization, local autonomies may have losses are funded and legally handled by the national entity. The process must also be sensitive to political pressures to guarantee that pre approved risk management channels are not used for political gain. Even though decentralization will empower local governments, decisions regarding certain public assets must be enacted at the national level. Moreover, many municipalities may lack the economic resources to implement mitigation measures

without national assistance. With these supports, granting increased power and responsibility to local levels can provide greater incentives for active risk management.

CASE STUDIES: Few case studies were collected. The first one is about the postponement of a marriage, second one is a problem faced by a girl at software company, the third one is postponement of Christmas trip, the fourth one is a boy missing his flight which affected his masters admission, and the fifth one is a mother facing difficulty when delivering a child. All these cases happened during Chennai Floods.

Case Study: 1

Due to heavy rainfall in Chennai, the marriage was postponed. The bridegroom reached the temple at where marriage was organized, but the bride was in the bus and it was stopped in a safe place for two days. They can neither go forward nor can they go back. All communication services are locked, which are inevitable conditions due to disaster. The bride family members worried a lot and eagerly waiting for Muhurtham (religious time set for events). The bride was continuously crying due to the delayed marriage. There is economic loss and physical strain and mental stress. All anyone can do is to wait and see and hope that the marriage will happen quickly.

Case study: 2

A girl named Sai works at a global company as a software engineer, and resides near an airport in a multi-stored building 2nd floor. The ground and first floors were drowned in water, and all the communications and transport services were stopped. All their belongings floated in the water. During that time a boat came for help and get them out. This is the situation in Chennai. They need time for mental, physical and economic recovery. Even the ATM machines are not working, at that time one water can and one liter milk cost even Rs. 250/- during the rainy period.

Case Study: 3

Syam David aged 55 booked a flight ticket to spend Christmas festival at Colombo with his wife and children. He came for business trip to India from Colombo two months back; he booked his return journey on December first week to Colombo. Due to heavy rain the number of flights canceled and totally airport was close. As a businessman before the disaster he has great confidence that "money makes many things", after disaster experience he changed his decision that money cannot make many things so it is in the hands of god in the form of Act of god and he said that "let me try again my luck twenty days time is there for me to celebrate family Christmas at Colombo. He ended in a long breath.

Case Study: 4

A boy who is native of Chennai rural 40km applied for MS Degree at USA winter season admission. In this connection he came to Chennai airport to flew. The airport is full of water and flights are cancelled his parents are illiterates. Due to lack of communication and transport he returned to his village after four days with his luggage without stepping into flight for further studies at USA.

Case Study: 5

A delivery case woman was taken in a boat because her residency was drowned that is ground floor and the water was up to II floor. Her husband resides at Dubai and the **pregnant** girl has left at her natal home at Chennai. Her **father** is away and he left to Chennai area away **40 km for** agricultural work. The girl's mother aged about 50 called her neighbors and taken their help when the girl is feeling delivery pains. The midwife house was about half km distance. The girl was taken in a cot (Nulakamanam) on a boat. The girl delivered a male child with the help of mid-wife. Later mother and baby kept covered with wool clothes with out candle matchbox and current during night time the delivery was happened. One **autoriksha man given** his cell which is full charged they managed 3/4th of the night with the light of cell later they waited for morning sunrise.

Conclusion: Disaster imparts lessons at a very high cost of life and property. This was happened in Chennai time takes for resettlement. Financial support and other services from center and other states extended to the people who are poor and needy. Disaster management

extended its strength multiple wings to disaster-affected people.

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