



FLOOD FURRY AND THE PEOPLE OF INDIA

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Introduction

Since time immemorial natural hazards have created fear in the minds of people. Its unpredictability has made it a fearsome phenomenon. In the ancient times natural hazards occurrence was perceived as god's will to wipe out evil from the earth. However, with the passage of time, man's knowledge of the environment and natural hazards widened and he started making efforts to understand the scale, intensity and occurrence of the natural hazards. Man overlooked the mechanism of nature and started altering it for his own use. With the advent of the technology, the process of alteration of nature became more fast and intense, thereby, disturbing the ecological balance of nature. As the world became increasingly transformed by humans, the hazard potentiality grew. All these are exacerbated by simple primal greed of man. The pressure on natural resources due to population increase, economic development and modernization has raised questions about the ability of earth to sustain future growth as environmental degradation and further invasion of unsafe zones will further intensify the natural hazards in future. (Davis, 2002; Goudie & Cluff, 2002) According to UNISDR, natural hazards refer to natural processes or phenomenon that may cause loss of life, injury or health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental damage. Natural hazards are created by environmental process that poses a danger to people and what they value. The most severe hazards are a potential threat to human life and

economic development (Goudie, 2002). Thus, it can be said that a hazard comprises a condition or event, either natural or man-made causing injury, loss of life and damage to property and environment. It includes earthquakes, volcanic eruptions, cyclonic storms, tsunamis, floods, drought, landslides etc.

Flooding is the most globally pervasive, environmentally diverse and continually destructive of all natural hazards. The word "flood" comes from the Old English flod, a word common to Germanic languages i.e. German Flut, Dutch vloed from the same root as is seen in flow, float; Latin fluctus, flumen. (Pipkin et.al., 2010; wikipedia). Floods are the stage or height of water above some given datum such as banks of the normal channel. Floods refer to phenomenon that occurs when an increase in precipitation, which is above normal recorded levels in a specific timeframe, leads to volume of water within a body of water, such as river or lake, to surpass the total holding capacity of that body. As a result, some of the water flows outside their normal perimeter, potentially causing serious damage and adversely affecting people and land resources production system (Goudie, 2001). Since the dawn of civilizations water has played an important role in the life of mankind. All major civilizations flourished on the banks of rivers. Water acted both as a blessing as it is the lifeline whereas it also became curse whenever it came in the form of intensive floods creating havoc in the life of mankind. The hazard named flood has been feared for ages. The great floods and their impact on humans have found their presence in the myths of many religions like Christianity, Judaism, Hinduism, Aztec works of ancient Greeks etc. It shows that the variability, intensity and annually occurring phenomenon of floods have caught great attention of people. As floods became better understood than any other natural hazards because of their annual character, the primitive flood control dams were constructed in the Middle East some 4000 years ago (Goudie and Cauff, 2002) making it evident that floods have always remained forefront in all the disasters. Floods are a part of the hydrological cycle. Droughts and floods are considered as two extremes of hydrological cycle. Droughts come when there is dearth of rainfall whereas floods occur in response to excessive rainfall thereby threatening huge losses of property and people.

India is considered as one of the most affected flood areas of the world. The factors contributing to floods especially in India are climate change, tropical cyclone, cloud bursts,

inadequate drainage arrangement, faulty agricultural practices and increasing population pressure in flood prone areas, bursting of dams and accelerated urbanization. Ecological degradation is further deepening the crisis. Over 70 per cent of rainfall happens to be in the month of June and September but when monsoon are excessive or extend their departure causing floods, the situation becomes topsy-turvy and huge economic, social and environmental losses in the respective areas. Moreover, the population of India is increasing astronomically and when people are settling in the areas close to rivers or river basins, the situation is becoming grim by each passing day. It is estimated that the flood affected area has more than doubled in size from about 5 per cent (19 million hectares) to about 12 per cent (40 million hectares) of India's geographic area in the past five decades. (World Bank Report, 2008).

Objectives:

1. To study the affect of floods on people in the World and Indian scenario.
2. To analyse the effects of floods on people of India.

World Scenario:

The entire world in the 21st Century is reeling under the impact of natural hazards. None of the country in the world is spared by natural hazards, yet the impact is different everywhere. Every year earthquakes, floods, cyclones, typhoons, hurricanes, tsunamis strike the world in different parts and leave their impact. Japan in March 2011 was hit by a powerful tsunami that crippled the whole nation. A powerful earthquake jolted Sikkim and north eastern states on 18th September, 2011. Floods submerged vast tracts of land and displaced millions of people in India and Pakistan in 2011 also. The Haiti earthquake, floods of Queensland, Aila cyclone, Hurricane Katrina etc., have disturbed the world. The hazards don't spare any nation whether it is rich or poor, developed or developing. But apathy is felt more in poor or developing countries as these countries are becoming overpopulated. World Disaster Report 2010 also states that high income countries in comparison to low income countries, having relatively same intensity of disaster will have lesser fatalities as their infrastructure is built in accordance to the expected disasters as well as they have good quality emergency responses. Whereas, in low income or developing countries the pressure on land and resources is increasing, infrastructure is poorly built, congestion is a trademark feature and governments don't have enough funds for making hazard proof

infrastructure. Increasing flooding of coastal and low lying areas is also a major livelihood threat, especially in vulnerable societies that do not possess the economic and technical means to cope (Black & et. al. 2008)

Table 1
Flood affected people in World and India, 2007-2011

Year	World*	India** (% to world)
2007	177840000	59265100 (33.32)
2008	65,896,025	28090501 (42.63)
2009	58983000	12499220 (21.19)
2010	186894000	5659576 (3.03)
2011	11166273	6932944 (62.09)

Source: *EM-DAT: The OFDA/CRED International Disaster Database, www.emdat.be -
Université catholique de Louvain - Brussels – Belgium

**Various flood site reports of Disaster Management Division, Ministry of Home Affairs, India

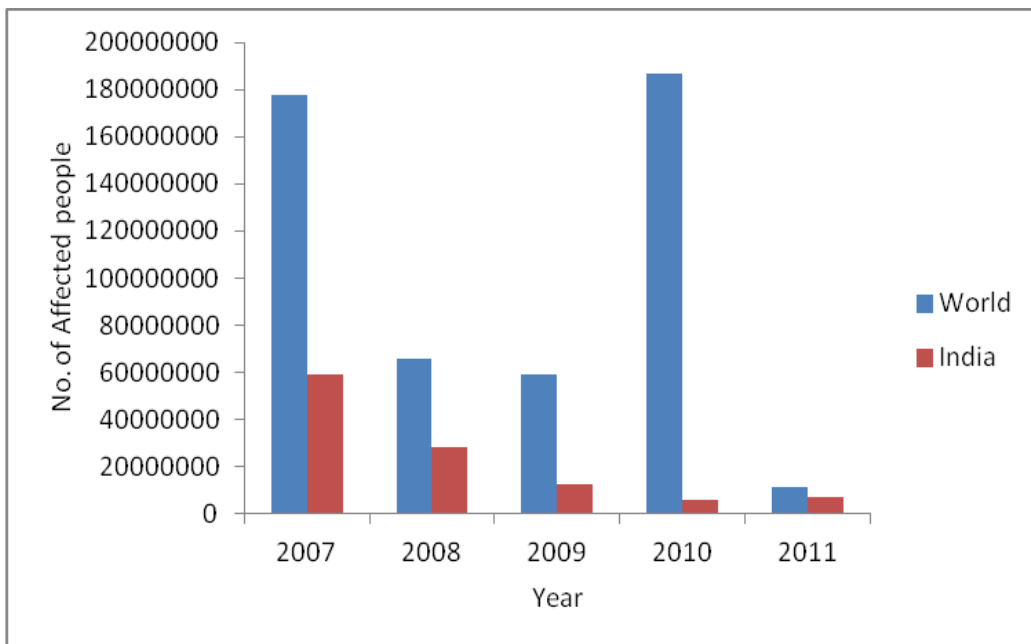


Fig 1: Number of people affected by floods : 2007-2011

Table 1 and Fig 1 show the number of people affected by floods in world and in India from the year 2007 to 2011 throughout the world. Nearly 186 million people in 2010 were affected by floods, followed by 177 million in 2007. In India, about 59 million people in 2007, 28 million in 2008 and about 6 million were affected by floods in 2011 till September. Around 33.3 per cent in 2007, 42.63 per cent (2008), 21.19 per cent (2009), 3.03 per cent (2010) of people affected by floods in the world were in India alone. The year 2011 surpassed all the previous figures as India constituted 62.09 per cent of the flood affected people throughout the world. From 2000- 2010 nearly 4022 natural disasters struck the world and floods created most of the destruction throughout the world in the guise of typhoons, hurricanes, cyclones, tsunamis, flash floods, river floods etc.

Indian Scenario:

India, since long, has remained a forefront nation in facing the natural disasters of many kinds and floods are almost an annual phenomenon. August- September 2011 witnessed displacement of more than one million in India due to floods (BBC News, September, 2011). Every year floods occur and affect people, displace them and destroy their property. Land area is affected and economy is badly damaged. According to RBA (Rashtriya Barh Ayog) about 40 million hectares of area in India is susceptible to floods (Map 1). As reported by states to the Working Group on Flood Control Programme for 10th five year plan nearly 45.65 million hectares of area in India is flood prone. The area wise break up given by RBA and Ministry of Water Resources states that in India, Uttar Pradesh (7.336 million hectare area) stands at the top in having area liable to disastrous floods. The states of Bihar (4.26 million hectare), Punjab (3.70 million hectare), Rajasthan (3.26 million hectare), Assam (3.15 million hectare), West Bengal (2.65 million hectare), Haryana (2.35 million hectare) and Orissa (1.40 million hectare) is also susceptible to floods. (Table 2)

Table 2
State wise distribution of area liable to floods

State	Area liable to Floods (million Ha.)
1. Andhra Pradesh	1.39
2. Assam	3.15
3. Bihar	4.26
4. Gujarat	1.39
5. Haryana	2.35
6. Himachal Pradesh	0.23
7. Jammu & Kashmir	0.08
8. Karnataka	0.02
9. Kerala	0.87
10. Madhya Pradesh	0.26
11. Maharashtra	0.23
12. Manipur	0.08
13. Meghalaya	0.02
14. Orissa	1.40
15. Punjab	3.70
16. Rajasthan	3.26
17. Tamil Nadu	0.45
18. Tripura	0.33
19. Uttar Pradesh	7.336
20. West Bengal	2.65
21. Delhi	0.05
22. Pondichery	0.01
Total	33.516

Source: Ministry of Water Resources, Govt. of India

India is an agrarian country as the economy largely depends on agriculture and its allied activities. Indian agriculture is still monsoon centric in many parts of the country rather than depending on irrigation. The monsoon in India has always been erratic. Sometimes it is normal, sometimes deficient resulting into droughts and sometimes it comes in excess and leads to floods. Therefore river floods, flash floods etc., destroy large tracts of land every year.

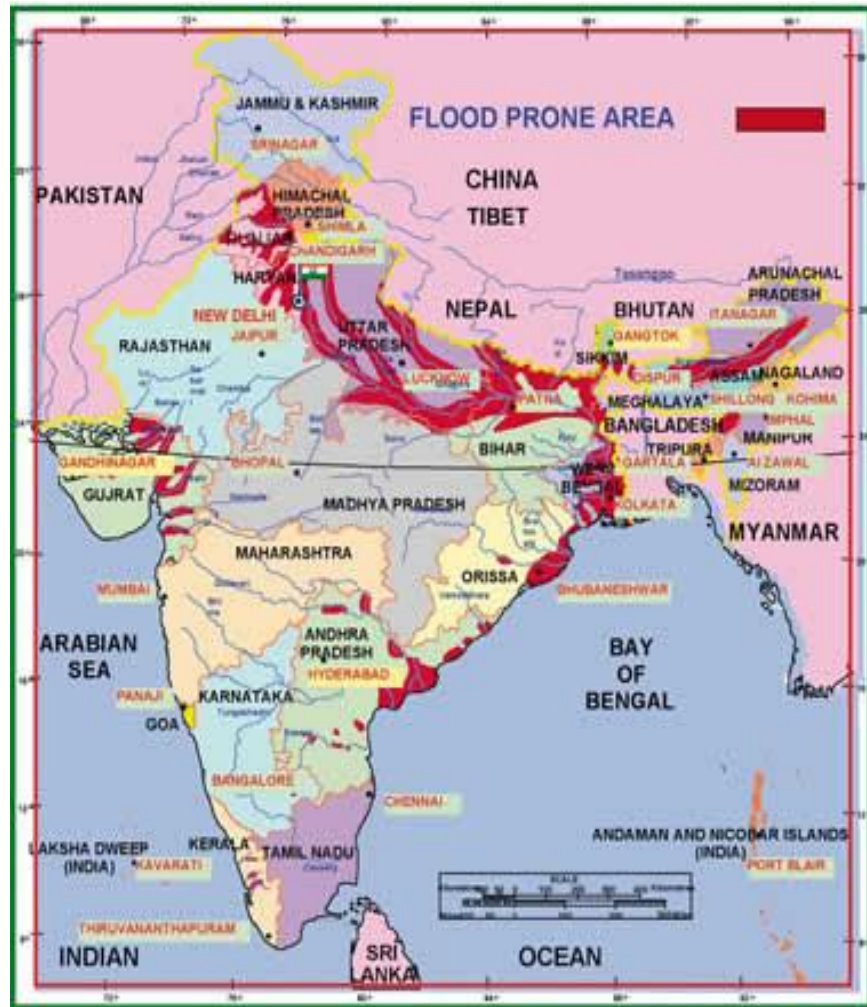


Table 3
Land affected by Floods in India: 2007-2011

Year	Area affected(in million hectares)
2007	258
2008	161
2009	713
2010	75
2011	40

Source: Various flood site reports of Disaster Management Division, Ministry of Home Affairs, India

The table 3 reveals that about 763 million hectares of land was inundated by floods in year 2009 only. About 258 million hectares was affected in 2007 and 161 million hectares in 2008 respectively. In 2010 75 million area was submerged under flood water whereas in September 2011 about 40 million hectares of area is reportedly affected by floods which surprisingly coincides with the figure about the flood liable area of India given by RBA (Rashtriya Barh Ayog).

Large numbers of people are affected every year by floods. Table no. 4 gives a state wise break up of distribution of flood affected people in India from 2007-2011. It reveals that almost all the states and union territories of India suffer from the floods and the worst sufferers are eastern states such as Bihar, Assam, West Bengal etc., where floods affect millions of people every year. These states are considered as the worst flood affected areas of the country. The reasons mounting to annual floods here is the large amount of rainfall especially in the rainy season i. e. more than 250 cm. These states also lies in the Ganga- Meghna – Brahmaputra river region where large amount of rainfall and heavy siltation leads to narrowing of river’s channels and river beds are also becoming shallower leads to heavy flooding in these states. Frequent landslides (as rocks are not strong) further aggravate the situation. The course of some rivers have also changed from time to time owing to inundation of large tracts of area and affecting millions of people. Another factor behind the large scale destruction over here is that these states are poorly developed except few pockets

Table 4

Flood Affected People in India: State wise break up; 2007-2011

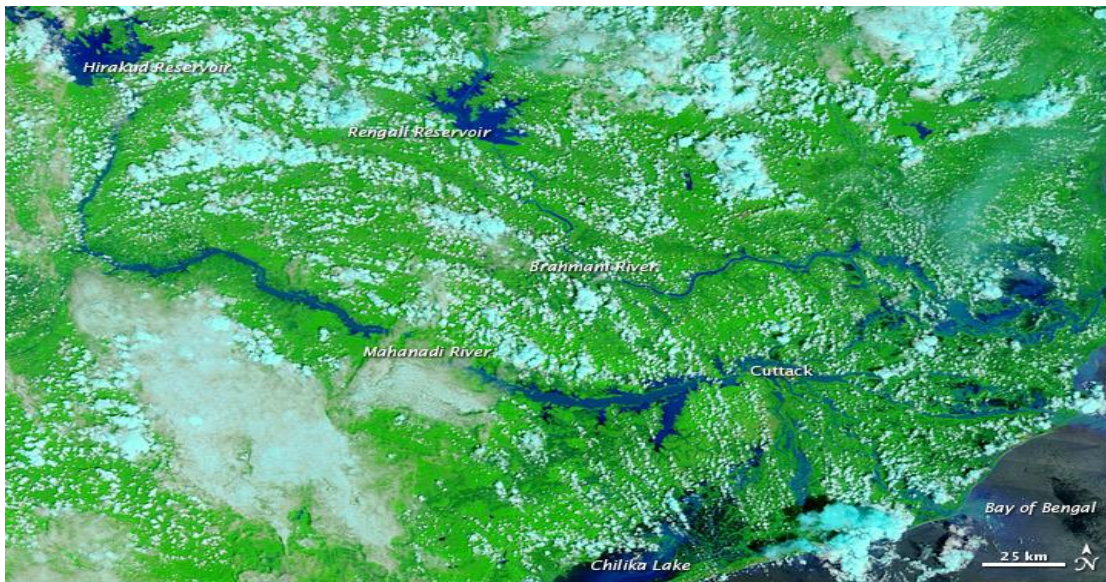
S.No.	States	2007	2008	2009	2010	2011
1	Andhra Pradesh	1131000	4433,000	18.16470	2.75423	-
2	Arunachal Pradesh	N.R	072175	NR	Nil	-
3	Assam	10867000	20,00,000	3.70780	12.43629	9.11080
4	Bihar	24558000	4842,000	18.38000	7.22000	26.39000
5	Chhattisgarh	196000	.09321	0.05575	-	-
6	Goa	300	-	NR	01	Nil
7	Gujarat	1487000	18.56,374	6.33981	7.36614	0.18838
8	Haryana	Nil	0.20925	Nil	17.34000	-
9	Himachal Pradesh	123000	0.63,675	-	0.10283	0.04220

10	Jharkhand	Nil	0.25,155	Nil		Nil
11	J & K	Nil	-		Nil	--
12	Karnataka	1976000	-	2.17000	6.92 lakh	3.67552
13	Kerala	1795000	0.92065	12.23210	1.29908	-
14	Madhya Pradesh	187000	-	Nil	-	Nil
15	Manipur	-	-	Nil	-	-
16	Mizoram	Nil	-	-	-	-
17	Nagaland	Nil	-		-	-
18	Maharashtra	135000	0.80629	NR	-	-
19	Meghalaya	Nil	0.01500	NR	-	-
20	Orissa	3551000	61.88,718	5.00000	0.89000	1.24300
21	Punjab	1500	1.94675	Nil	4.00000	0.48000
22	Rajasthan	294000	0.05603	NR	-	-
23	Sikkim	-	-	Nil	-	-
24	Tripura	Nil	-	-	-	-
25	Tamil Nadu	Nil	-	NR	-	-
26	Uttar Pradesh	1243000	41.68509	18.35115	5.83 lakh	-
27	Uttarakhand	N.R.	-	792	0.80000	-
28	West Bengal	11720000	40.36177	29.47747	2.38718	56.31178
29	Andaman & Nicobar	Nil	-	Nil	-	-
30	Chandigarh	-	-	-	-	-
31	Daman & Diu	Nil	-	Nil	-	-
32	Dadra & Nagar Haveli	Nil	-	Nil	-	-
33	Delhi	-	-	-	-	-
34	Lakshadweep	Nil	-	Nil	-	-
35	Puducherry	300	-	0.01550	-	- N

Source: Various flood site reports of Disaster Management Division, Ministry of Home Affairs, India

Pressure of population is high because of large number of migrants from Bangladesh and other states of the country. Sometimes they do not find adequate space to settle down and then settles in flood prone areas. It increases the intensity of floods. Large numbers of people are also affected by floods in the states of Orissa, Kerala, Karnataka, Andhra Pradesh and Gujarat. Among these states, Orissa suffers the most as every year floods ravage this state and leave economy in a crippled form. Recently in 2011 in the month of September Orissa suffered a lot by

floods (Map 2). This phenomenon repeats itself every year and people have understood and accepted it as their fate and works towards mitigating its effects. Most of these areas are coastal states and receive large amount of rainfall because of cyclones like Phet, Laila, Aila etc. which creates depression and the basin of Godavri, Cauvery, Krishna, Mahanadi river suffer from floods. Heavy siltation after floods further accentuates the problem. Punjab, Haryana, Uttar Pradesh also suffer from heavy flooding. Heavy monsoonal rainfall, inadequate surface drainage, waterlogging, poorly drained areas, construction in low lying areas and river beds of dried river get flooded during the monsoons and affected hundreds and thousands of people. Rivers like Satluj, Beas, Ganga, Ghaggar create havoc in the country every year. Climate change and flooding in the rivers of Punjab and Haryana also raises problems in Rajasthan. It reveals that flooding is an annual phenomenon in India.



Map 2: Orissa, September 11, 2011

Displacement of People:

Millions of men, women and children have to leave their homes with the sudden onset of natural hazards like floods, earthquakes, tsunamis, storms, cyclones etc. The Guiding Principles on Internal Displacement identify natural disasters as one of the main causes of internal displacement, along with conflict, infrastructural projects and human rights violation. Table 5 shows that due to flood, largest number of people were displaced in the year 2007 i.e. 15 million.

11 million (2008), 1 million (2009), 723 thousand (2010). Whereas till September 2011, floods displaced nearly 1 million people in India alone (BBC News South Asia).

Table 5
Displacement of people in India: 2007-2011

Year	Displaced people
2007	15195000
2008	11805000
2009	1840000
2010	723980
2011	1004500

Source: Dartmouth Flood Observatory, University of Colorado, USA

The displacement due to natural hazards leads to a number of problems such as the provision of food, shelter, clothing, health care, adequate sanitation facilities etc. Health care facilities are prerequisites as displaced people live in traumatic conditions as they lose their houses, property, cattle etc.

Affect of Floods on Economy:

Floods are a recurring phenomenon in India as these creates havoc in one or the other part of the country every year. Indian economy which tries to keep pace with worlds’ largest economies often gets setback because of the natural disasters like floods as it causes large scale inundation of land area, crops are affected, cattle’s are lost and large number of people are displaced. After these floods, rebuilding of infrastructure, medical and social help to sufferers further increases the burden on economy. Table 6 shows the economic loss generated by natural disasters in India from 1900-2011.

Table 6

Top 10 Natural Disasters in India for the period 1900 to 2011 sorted by economic damage costs:

Disaster	Date	Damage(000 US\$)
Flood	8-Jul-1993	7,000,000
Flood	28-Jul-2006	3,390,000
Flood	24-Jul-2005	3,330,000
Earthquake (seismic activity)	26-Jan-2001	2,623,000
Storm	28-Oct-1999	2,500,000
Flood	20-Jun-2004	2,500,000
Flood	28-Jun-2005	2,300,000
Storm	25-Aug-1990	2,200,000
Flood	25-Sep-2009	2,150,000
Flood	18-Sep-2010	1,680,000

Source: "EM-DAT: The OFDA/CRED International Disaster Database, www.emdat.be -
Université catholique de Louvain - Brussels - Belgium"

The table 5 shows that among all the top 10 natural disasters in India occurring between the periods of 1900-2011. But it is the floods that have burdened the economy the most. The floods that occurred in India during these years have resulted in large scale economic damage and especially in the last decade i.e. 2001-2011.

The flood frequently strikes those states which are poor and the annual phenomenon of flooding further deteriorates the situation of the state. The Table 7 depicts the estimated value of total damage caused by floods (in lakhs) from the year 2007-2011.

Table 7

Estimated Value of the Damage Caused by Floods in India: 2007-2011

Year	Estimated value of total damage(in lakh)
2007	1085346.925
2008	266837.945
2009	140004.40
2010	106586.3
2011	134740.1

Source: Various flood site reports of Disaster Management Division, Ministry of Home Affairs,
India

The table brings to the fore that throughout this period India suffered huge losses by floods. The worst suffering years were 2007 and 2008, while floods caused an estimated loss of 134740.1 lakh in 2011 till September.

It becomes evident from the above discussion, that floods in India have destroyed large tracts of land, created huge economic losses, affected millions of people, resulted in displacement of masses, destroyed basic services like transportation, telecommunication etc., thereby, creating situation of distress and despair.

Management and Mitigation:

From the above discussion it comes to the fore that furious floods are a regular phenomenon in our country and badly affects the lives of people. Therefore, there is an urgent need to manage and mitigate this natural disaster. Keeping in view the high scale destruction caused by natural hazards in developing and poor countries, United Nations General Assembly in 1989, declared 1990- 2000 as International Decade for Natural Disaster Reduction with the sole objective of reducing loss of lives and property in developing countries. Ban Ki-moon, United Nations Secretary-General, on 9 February 2011 in United Nations High-level Plenary Meeting on the Millennium Development Goals, the first-ever informal thematic debate on disaster risk reduction said that the international community must learn to manage and maintain a truly global response to disasters caused by natural hazards and make the most effective use of resources. United Nation agencies, organizations, businesses and civil society also realized the risk and vulnerability, the better equipped they will be to mitigate disasters when they strike, and thus, save more lives. The Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (HFA) is a 10-year plan to make the world safer from natural hazards. It was adopted by 168 Member States of the United Nations in 2005 at the World Disaster Reduction Conference.

In case of India systematic planning for flood management commenced in 1954 by launching National Programme of Flood Management in the year 1954. The essential components of an Integrated Flood Management Plan as suggested by World Bank are:

1. Advanced System for Detection and Forecasting of Floods: It is a very important component as it guides in risk preparedness. Flood forecasting has been recognized as

one of the most important, reliable and cost-effective non-structural measures for flood management. Central Water Commission started flood-forecasting services in 1958 with the setting up of its first forecasting station on Yamuna River at Delhi Railway Bridge. The Flood Forecasting Services of Central Water Commission consists of collection of Hydrological/ Hydro-meteorological data from 878 sites, transmission of the data using wireless/ fax/ email/ telephones /satellites /mobiles, processing of data, formulation of forecast and dissemination of the same. Presently, a network of 175 Flood Forecasting Stations including 28 inflow forecast, in 9 major river basins and 71 sub basins of the country exists. It covers 15 States besides National Capital Territory of Delhi and Union Territory of Dadra & Nagar Haveli. Central Water Commission on an average issues 6000 flood forecasts with an accuracy of more than 95 per cent every year. Central Water Commission, Ministry of Water Resources has set up a network of forecasting stations covering all important flood prone interstate rivers (Ministry of Water resources, India).

Table 8: Flood Forecasting Centres in India

Sl. No	Name of States/Union Territories	Flood Forecasting Stations		
		Level Forecast Stations	Inflow Forecast Station	Total
1	Andhra Pradesh	9	7	16
2	Assam	24	0	24
3	Bihar	32	0	32
4	Chattisgarh	1	0	1
5	Gujarat	6	5	11
6	Haryana	0	1	1
7	Jharkhand	1	4	5
8	Karnataka	1	3	4
9	Madhya Pradesh	2	1	3
10	Maharashtra	7	2	9
11	Orissa	11	1	12
12	Tripura	2	0	2
13	Uttar Pradesh	34	1	35
14	Uttarakhand	3	0	3
15	West Bengal	11	3	14
16	Dadra and Nagar Haveli	1	0	1
17	NCT of Delhi	2	0	2
	Total	147	28	175

Source: Ministry of Water Resources, Govt. of India

The forecasts issued by these stations are used to alert the general public and to enable the administrative and engineering agencies of the States/UT have to take appropriate measures.

Flood inundation mapping is another tool to manage the floods. A flood inundation map provides information about the areal extent of inundation for a reach of a river during a flood event when the flood water in the river overtops its banks and leads to the flooding of adjoining areas. The flood inundation map of river may be prepared by demarcation with physical inputs i.e. by demarcating the various locations of the flood plains which get inundated during a particular flood, by hydraulic/hydrologic modelling and using the satellite data. The satellite data is quite useful in making maps of flooded areas, which extend to several thousands of square kilometers. The Earth Observation satellites provide comprehensive, synoptic and multi temporal coverage of large areas in real time and at frequent intervals and, thus becoming valuable for continuous monitoring of atmospheric as well as surface parameters related to flood. Geostationary satellites also provide continuous and synoptic observations over large areas on weather including cyclone monitoring. The meteorological satellites are of great value for forecasting heavy rainfall events, snowmelt runoff and monitoring of convective/frontal systems. The use of high resolution data from Indian Remote Sensing satellites has also greatly contributed to understanding of various parameters relevant to rainfall run-off analysis, flood forecasting and flood mapping including flood damage assessment.

2. Anticipatory and Proactive Actions: These are required to minimize flood risks and build capacity to withstand flood events. These include large scale afforestation particularly in the catchment areas, construction of dams, stream channelization, channel improvement and construction of embankments. Ministry of water resources has also taken some steps in this regard. (Table 9).

Table 9

Anticipatory and Proactive steps taken for floods management in India

1.	Flood embankments	34397.61 km
2.	Drainage channels	51317.50 km
3.	Towns protection works	2400 Nos.
4.	Villages raised	4721 Nos.

Source: Ministry of Water Resources, Govt. of India

Reservoirs constructed by government with exclusive flood control storage include Maithon, Panchet, Tilaiya and Konar in Damodar Valley; Chandil dam on Subarnarekha river and Rengali dam on Brahmani river. In addition to it a live storage of 177 billion cubic meter are created so far in the various reservoirs for irrigation, hydropower generation, drinking water etc. These also help in reducing flood intensity by storing part of the flood waters in them.

Another anticipatory and proactive steps that can be taken are flood plain zoning, flood plain regulation , agricultural adaptation i.e. rainfall tolerant crops should be grown, income diversification and risk preparedness for risk reduction like emergency response groups, disaster management teams, self help groups and general public should always be well prepared. Role of civil society and local authority is crucial in making these actions actually responsive.

3. Reactive actions: These are the actions that deal with the aftermath of floods and include compensation as well. In India the Central Relief Commissioner (CRC) in the Ministry of Home Affairs is the nodal officer to coordinate relief operations for natural disasters. The CRC receives information relating to forecasting/warning of a natural calamity from India Meteorological Department (IMD) or from Central Water Commission of Ministry of Water Resources on a continuing basis. National Crisis Management Committee (NCCM), Crisis Management Group, State Relief Manuals, Contingency Action Plan work in the wake of floods and work in the aftermath of flood like disasters mechanisms and Calamity Relief Fund (CRF) has been set up in each State as per the recommendations of the Eleventh Finance Commission. The Government of India contributes 75% of the corpus of the Calamity Relief Fund in each State. 25% is contributed to by the State. In India, the basic responsibility for undertaking rescue, relief and rehabilitation measures in the event of a disaster is that of the State Government concerned. At the State level response, relief and rehabilitation are handled by Departments of Relief & Rehabilitation. Another important reactive action is the protection of critical infrastructure. It is also very important to examine the accountability and monitoring of flood work undertaken on timely basis. Timely restoration of

transportation, communication, power, sewerage lines etc are required and more flood preparedness should be created among masses.

Conclusion

Thus it can be concluded from the above discussion that among all the natural hazards it is the furious flood that has created most ruckus and has affected the people throughout the world. India with its diverse physiography, meteorology and climatic characteristics is one of the leading countries among the countries suffering from floods. Every year these furious floods strikes India in different forms and through different causes like river floods, cloud burst, cyclonic rainfall, dam release, levees breaking , monsoonal rainfall etc. These floods affect millions of people every year, leads to large scale disruption of life, affecting economy as crops are destroyed, vast agricultural land is inundated, millions are displaced, they become houseless, cattles are lost, fatalities happen etc. making it the costliest natural disaster in India. It is very important to have a multi disciplinary, multi sectoral approach if the affects of floods are to be reduced. Both the government and general public should work in sync with each other, only then the impact and affect of floods can be reduced to some extent.

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