Flood: Trends and Social Impacts in Indian context

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Integrated Health Social and Economic Impacts of Extreme Events

Introduction

- India is the most flood affected nation in the world after Bangladesh.
- It accounts for 1/5th of the global deaths by floods every year and on an average 30 million people are evacuated every year.
- The area vulnerable to flood is 40 million hectare and average area affected by floods is 8 million hectare.
- Unprecedented floods take place every year at one place or the other.
- The most vulnerable states of India are: Uttar Pradesh, Bihar, Assam, West Bengal, Gujarat, Orissa, Andhra Pradesh, Madhya Pradesh, Maharashtra, Punjab and Jammu & Kashmir.

Floods in Historical Context

- History of floods can be traced from ancient periods.
- Certain archaeological evidence point towards some devastating floods.
- One of the earliest evidence dates back to the floods of the Indus Valley Civilization.
- Another evidence comes from the epic *Mahabhatata.*
- This is proved to be true by certain archaeological excavations.
- Apart from this there are some legends associated with floods in India like that of *Manu.*

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- During the British rule in India there occurred a flood which caused considerable damage in 1927.
- In the independent India the first major flood occurred in 1953.
- After this series of floods happened every year.

Impact of Flood in India (1953-2006)

Years in group	Average area affected in '000 hectares	Average population Affected in million	Average human loss in '000	Average cattle loss in '000	Average economic loss in million rupees
1953-57	6664	16.76	399	33	140
1958-62	6448	11.714	648	31.8	148
1963-67	4342	12.636	347.2	6.4	98
1968-72	7832	34.53	1503.8	98	1162
1973-77	9606	44.956	3022.2	186.2	2542
1978-82	9588	46.518	2379	249	6382
1983-87	9162	55.80	1775.6	105.2	17540
1988-92	8531	37.42	2109	96	14928
1993-97	6821.4	33.66	1992.2	73	16090
1998-2002	5382.5	26.89	2143.25	59.03	16863.3
2003-06	2867.5	23.864	1563.75	34.14	NA

Flood Trends

- Till 1987 there is an increase in the average area affected and average population affected and afterwards there is a decline.
- As far as average human loss is concerned there is no specific trend seen.
- Average cattle loss shows a decline from 1953 till 1967, then increased till 1982 and then again declined thereafter.
- Economic losses increased except for a dip during 1963-1967 and 1988-1992.
- Most of the parameters taken shows decreasing tendency in recent years.

Area Liable to Floods (Source: National Flood Commission Report)

Sl no.	State	Geographical area (million.hact.)	% Area liable to Flood	% Area protected
1	Andhra Pradesh	27.51	5.05	2.5
2	Assam	7.84	40.18	16.64
3	Gujarat	17.39	24.50	9.00
4	Haryana	4.42	53.17	24.7
5	Himachal Pradesh	5.57	4.13	-
6	Jammu & Kashmir	22.22	0.36	0.05
7	Karnataka	19.18	0.10	0.005
8	Kerala	3.89	22.37	0.28
9	Madhya Pradesh	44.34	0.59	-
10	Maharashtra	30.77	0.75	0.003
11	Manipur	2.23	3.59	3.27
12	Meghalaya	2.24	0.89	3.34
13	Orissa	15.57	8.99	2.25
14	Punjab	5.04	73.41	47.7
15	Rajasthan	34.22	9.53	0.046
16	Tamil Nadu	13.01	3.46	0.22
17	Tripura	1.05	31.43	0.85
18	Uttar Pradesh	29.44	24.93	2.5
19	West Bengal	8.88	29.84	11.27
20	Delhi	0.15	33.33	15.33
21	Pondicherry	0.05	20.00	Neg.

Indian States and Floods

- There are many states in India where the percentage of area liable is much higher as compared to other states.
- States like- Assam, Haryana, Punjab, Tripura, Delhi and Gujarat have high percentage of area liable for floods.
- In Punjab out of 73.4% of area liable for floods only 47.7% is protected.
- The trend clearly shows that less than half the area liable for floods is protected from the floods.
- Thus intensive measures required to be taken to bring down the percentage of area liable for floods.

Government Policies and Progammes for Flood Control

- In the pre-independence India the severe floods of 1927 inspired the then British Govt. to appoint Orissa flood committee to enquire into the nature and cause of flood.
- This was probably the first attempt to systematically examine the issue of flood.
- It was followed by Patna conference on flood in 1943.
- After independence and the unprecedented floods of 1953 the Govt. of India took several initiatives.
- The first national policy in this regard was formulated in 1954.

Important steps taken to address the problem of floods

- High level committee on floods- 1957
- Policy statement on floods- 1958
- Ministerial committee on flood control- 1964
- Minister's committee on flood and flood relief- 1972
- Working group on flood control for five year plans
- Rashtriya Barh Ayog(National Flood Commission)- 1980
- National water policy- 1987
- National commission for integrated water resource development plan- 1996
- In 1996 flood of severe intensity forced the govt. to constitute five regional task forces- eastern, north-eastern, northern, north-western and southern.

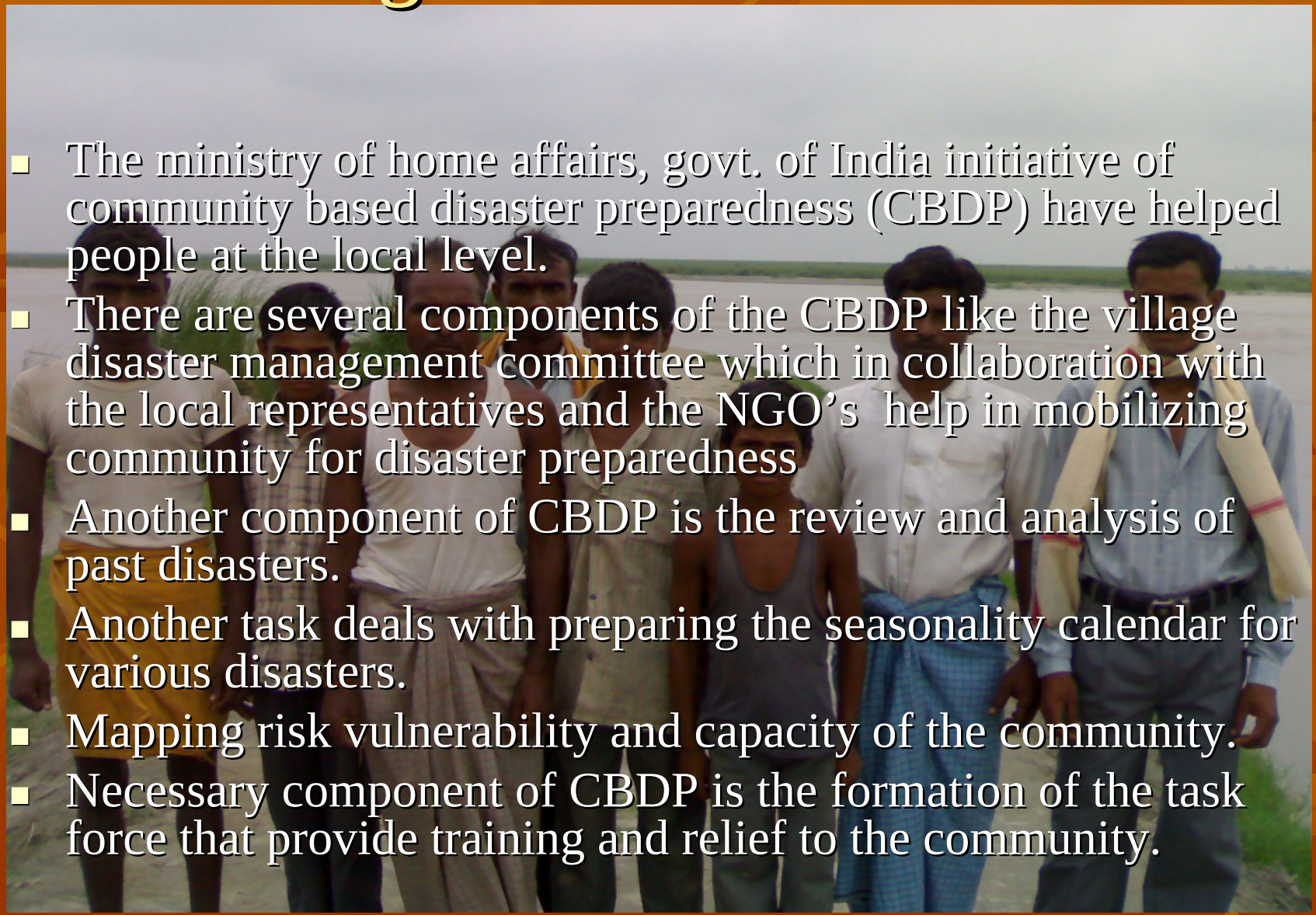
Government Bodies for Flood Management

- State flood control departments.
- Central water commission
- Ganga flood control commission.
- Brahmaputra board.

Approach towards Flood Management

- Embankments
- Dams and reservoirs
- Natural detention basin
- Channel improvement
- Drainage improvement
- Diversion of flood waters
- Flood plain zoning
- Flood proofing
- Water shed development and management programme.

Management at Local Level



- The ministry of home affairs, govt. of India initiative of community based disaster preparedness (CBDP) have helped people at the local level.
- There are several components of the CBDP like the village disaster management committee which in collaboration with the local representatives and the NGO's help in mobilizing community for disaster preparedness
- Another component of CBDP is the review and analysis of past disasters.
- Another task deals with preparing the seasonality calendar for various disasters.
- Mapping risk vulnerability and capacity of the community.
- Necessary component of CBDP is the formation of the task force that provide training and relief to the community.

Assessment of Flood Management

- A review of steps taken for flood protection and mitigation indicate towards a lack of holistic approach.
- The primary emphasis of the govt. has been in making the dams and embankments.
- Lack of coordination and trust between government and people. Priorities and expectations vary.
- Social impact assessment is somewhat neglected.

Social Impacts of Flood

- At the conceptual level the social impact deals with the vulnerability and resilience of the group.
- Vulnerability is the attribute the people have and resilience is the behaviour they engage in.
- The vulnerability of the population depends on several social factors like- age, gender, economic status, social cohesion, population density, gender, health status, race/ethnicity, education, residential status, culture etc..
- In India the major breakthrough in the social impact assessment studies came with the UN/ISDR funded landmark work done by CRED and Delhi University on Tsunami flood victims.

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- The study reveals a number of vulnerability factors like- age, gender, lack of warning and preparedness and distance from the sea.
- Young children and frail elderly are more vulnerable as they lack developmental capacity or strength to escape the hazardous situation.
- The lack of ability to swim among the women made them more vulnerable during the 2004 Tsunami.
- Areas with lowest socio-economic conditions show higher mortality rates.
- In Indian context another aspect of vulnerability is the caste.

Conclusion

- Situation of flood and its mitigation in Indian context is problematic.
- Govt. has initiated many policies and programmes for flood management but they are not very successful.
- The major emphasis till now had been on the technological structural aspects of flood control and mitigation.
- The social impact assessment and its importance had been neglected.
- This situation is however changing with more studies been taken up focusing the social impacts of flood.
- The future is therefore hope generating.

Microdis Initiative

- Microdis is a 6th Framework supported integrated research project.
- Consortium of eight European and 7 Asian partners.
- Our team is involved in assessment of social impact with special reference to flood, cyclone and earthqaukes in India.