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Flood Management in India

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ABSTRACT

Floods are common natural disasters that affect millions around the world every year. They destroy houses and buildings, and carry soil away from valuable farming land. Floods also contaminate drinking water and lead to diseases. They are often caused by rivers, but overflowing lakes and seas can also cause flooding. Low-lying countries are in permanent danger of being flooded. A large section of land in countries around the world including India lies below sea level. Ocean waters can also cause much flood of the country. Human beings are also responsible for causing floods. Trees and plants helps in absorbing excess water from the soil. Due to deforestation and felling of trees the rain water flows in the barren lands and causes mudslides. The floods kill thousands of people and leave millions homeless around the world every year. The present study deals with the environmental impacts of flood where the emphasis remains in the collection of the data related to environmental impacts caused by flood. The impact of floods on flora and fauna of the areas affected are likely to be revealed in this study. It also includes the flood management policy and steps taken by the government and non-government bodies in India.

Key words : Flood, Ocean, Management

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INTRODUCTION

Water is vital to life. Not even animals or plants can exist without it. Agricultural activities do require adequate supply of water. Yet the same water causes disaster and becomes a terror in the form of floods, when the rivers overflows due to excessive rain .In India almost every year floods are common in some part of the country. During rainy season our rivers are swollen and cause disastrous floods which cause heavy destruction to life and property. The swollen rivers inundate fields, destroys crops, house, villages etc. causing loss of human lives , cattle population and destruction to properties. The water washes away everything that comes in its way. Floods cause about one third of all deaths, one third of all injuries and one third of all damages from natural disasters (Akew, 1999).

Flooding has always been a part of human history. Many ancient civilizations developed along waterways and rivers because people need water for their fields. The rivers often change their course submerging large areas of land. Floods are the most common natural disaster and the leading cause of natural disaster fatalities worldwide. Risk of catastrophic losses due to flooding is significant given deforestation and the increasing proximity of large populations to coastal areas, river basins and lakeshores. The objectives of this review were to describe the impact of flood on human populations in terms of mortality, injury, and displacement and, to the extent possible, identify risk factors associated with these outcomes.

Floods are a recurrent phenomenon, which cause huge loss of lives and damage to livelihood systems,

property, infrastructure and public utilities. Floods causes extensive damage. Apart from destroying crops, cattle, houses and all other things coming in its way, floods take away with it the upper fertile crust of land. Many villages are submerged by the flood waters and low lying areas turn into huge lakes.

India is highly vulnerable to floods. Out of the total geographical area of 329 million hectares (mha), more than 40 mha is flood prone. It is a cause for concern that flood related damages show an increasing trend. India is affected by severe floods ,on an average it got affected in an interval every three years. Out of the total geographical area of 329 million hectare more than 40 mha is prone to floods. The monetary value of the flood damage is showing an increasing trend. The economically and socially weaker segments of the population are the worst affected. The average annual flood damage in the period from 1996 to 2005 was Rs. 4745 crore as compared to Rs. 1805 crore, the corresponding average for the previous 53 years. This can be attributed to many reasons including a steep increase in population, rapid urbanization growing developmental and economic activities in flood plains coupled with global warming.

Unplanned and unregulated developmental activities in the flood plains of the rivers and encroachments in the waterways have led to the increase in flood losses as well as flooding of the town and cities. Floods do not cause immediate damage only, but leave behind many problems for the health and civic authorities. The flood waters take a long time to recede. Even after months, large areas submerged in water appear to be big lakes. Water could either be pumped out or allowed to evaporate under sun. This causes health hazard. Law and order problems also come up. Malaria, cholera and other water borne diseases sometimes come up as epidemics in flood affected areas. They take a heavy toll of life even after waters have receded. Water logging in vast areas is another problem faced during and after floods.

Floods are the leading cause of natural disaster deaths worldwide and were responsible for 6.8 million deaths in the 20th century. Asia is the most flood-affected region, accounting for nearly 50% of flood-related fatalities in the last quarter of the 20th century 1,2,3 . The Center for Research on the Epidemiology of Disasters (CRED) defines a flood as “a significant rise of water level in a stream, lake, reservoir or coastal region” 4. More colloquially, flooding is the “presence of water in areas that are usually dry” 1. The events and factors that precipitate flood events are diverse, multifaceted, and interrelated. Weather factors include heavy or sustained precipitation, snowmelts, or storm surges from cyclones whereas important human factors include structural failures of dams and levies, alteration of absorptive land cover with impervious surfaces and inadequate drainage systems. Geographic regions such as coastal areas, river basins and lakeshores are particularly at risk from storms or cyclones that generate high winds and storm surge 5. Environmental/physical land features including soil type, the presence of vegetation, and other drainage basin characteristics also influence flood outcomes 6. Floods transpire on varying timelines, ranging from flash floods with little warning to those that evolve over days or weeks (riverine). Flash floods, characterized by high-velocity flows and short warning times have the highest average mortality rates per event and are responsible for the majority of flood deaths in developed countries 1,3,7. In contrast, riverine floods which are caused by gradual accumulation of heavy rainfall are less likely to cause mortality because of sufficient time for warning and evacuation. Occasionally floods are associated with secondary hazards such as mudslides in mountainous areas.An average every year, 75 lakh hectares of land is affected, 1600 lives are lost and the damage caused to crops, houses and public utilities is Rs.1805 crores due to floods. The maximum number of lives (11,316) was lost in the year 1977. The frequency of major floods is more than once in five years.

Floods have also occurred in areas, which were earlier not considered flood prone. One of the main reasons for recurrent floods in India is heavy rainfall during monsoon seasons for a couple of months. Due to excessive rains all-round, the rivers and their tributaries overflow. More-and-more water from their catchment areas drain into rivers, resulting in

floods. Melting of snow in the Himalayas during summer also causes increased discharged of water in several rivers, flooding the areas which suffer immense loss.

Silting the river beds over a period of time, reduces their water flowing capacity, as it constantly reduces its depth. It also results in floods. Sometimes there are huge landslides in the hills and large amount of rocks and other debris fall into river resulting in wide floods. These may be termed as natural cause of floods which are beyond control.

Preparation for a flood

Avoid building in flood prone areas unless you elevate and reinforce your home.

Elevate the furnace, water heater, and electric panel if susceptible to flooding.

Install "Check Valves" in sewer traps to prevent floodwater from backing up into the drains of your home.

Contact community officials to find out if they are planning to construct barriers (levees, beams and floodwalls) to stop floodwater from entering the homes in your area.

Seal the walls in your basement with waterproofing compounds to avoid seepage.

Do's for flood

Listen to the radio or television for information.

Be aware that flash flooding can occur. If there is any possibility of a flash flood, move immediately to higher ground. Do not wait for instructions to move.

Be aware of streams, drainage channels, canyons, and other areas known to flood suddenly. Flash floods can occur in these areas with or without such typical warnings as rain clouds or heavy rain.

Secure your home. If you have time, bring in outdoor furniture. Move essential items to an upper floor.

Turn off utilities at the main switches or valves if instructed to do so. Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.

If you have to leave your home, remember these evacuation tips:

Do not walk through moving water or you may fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.

Do not drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground if you can do so safely. You and the vehicle can be quickly swept away.

Capacity building is an ongoing process that equips officials, stakeholders and the community to perform their functions in a better manner during a crisis/disaster. In the process of capacity building, we must include elements of human resource development, i.e., individual training, organizational development such as improving the functioning of groups and organizations and institutional development. At the national level, The National Institute of Disaster Management (NIDM) is the capacity building arm and the States have disaster management cells in the State Administrative Training Institutes performs the function of capacity building for effective and efficient disaster management. There are a number of other training institutes which are engaged in training and capacity building in the area of disaster management.

NDMA is running training capsules on the subject on a regular basis in the Lal Bahadur Shastri National Academy of Administration, Mussoorie and Sardar Vallabhbhai Patel National Police Academy, Hyderabad. Effective and prompt response to floods is very important in minimizing loss of life and property and providing immediate relief to the affected people.

How to prevent losses from floods

An effort has been made in these Guidelines to cover the entire gamut of Flood Management. Eighty per cent of the precipitation takes place in the monsoon months from June to September. The rivers bring heavy sediment load from catchments. These, coupled with inadequate carrying capacity of rivers are responsible for causing floods, drainage congestion and erosion of river-banks. Cyclones,

cyclonic circulations and cloud bursts cause flash floods and lead to huge losses. It is a fact that some of the rivers causing damage in India originate in neighboring countries; adding another complex dimension to the problem. Continuing and large-scale loss of lives and damage to public and private property due to floods indicate that we are still to develop an effective response to floods. NDMA's Executive Summary Guidelines have been prepared to enable the various implementing and stakeholder agencies to effectively address the critical areas for minimising flood damage. Expanded monitoring of floods, improved mitigation measures, and effective communication with civil authorities and vulnerable populations has the potential to reduce loss of life in future flood events.

CONCLUSION

Proper flood management policy is very essential for a flood prone country like India. More than 100 districts in India are badly affected by floods every year and this leads to great loss of life and property. A number of areas in Gujrat, Uttar Pradesh, Bihar, Rajasthan have flooded in 2017. On the other hand, about 100 districts are facing drought like conditions. During monsoons, rivers like Ganga, Narmada, Bramhaputra, Godavari, Kosi, Sutlej, Beas, Jhelum, Chenab, Gandak, Gomti cause dangerous floods and on the other hand, several smaller rivers are losing their significance because of lack of water. The role of civic bodies is essential in minimizing the effect of floods. Proper assessment is very important while giving town planning permits so that limits can be placed for making the area less vulnerable to flooding. Proper model should be prepared for assessing possibilities of rise in water level and good coastal development programmes. The authorities also need to carry out awareness and education programmes so that people in flood-prone areas can be in a better situation if and when a flood happens.

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