



ISSN : 2582-8169

“Flood Disasters and their Management in Hoogly District, West Bengal”

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Received : 11th October, 2022;

Revised : 21th October, 2022

; Accepted : 12th November 2022

Floods, cyclones, earthquakes, and droughts are only some of the natural calamities that hit West Bengal regularly, resulting in casualties and material destruction. A flood disaster profile of West Bengal is the need of the hour, highlighting the kind and scope of floods and the damage inflicted by floods in recent years. West Bengal continues to be one of India's most flood-vulnerable states. This paper discusses flood-prone areas in West Bengal's Hoogly district, the historical impact of flooding, and government responses to the problem. Devastating floods hit the area every monsoon and late monsoon when water is released from the barrage on the river that forms the upper catchment, the Damodar Valley Corporation, and then flows downstream, damaging the embankment on the smaller rivers. As a result, this article serves to inform us of the flood's current state and sheds light on the ways in which locals in a catastrophe-stricken area have taken initiative to improve disaster preparedness, response, and recovery. Most of the time, these standards are derived from what people have seen, felt, and been able to afford in the area.

Keywords: Management, Soil health, crop rotation, reliance on fertilisers and pesticides

I. INTRODUCTION

An area that is normally dry becomes inundated during a flood because of the excess water. A flood can be caused by the build-up of precipitation on already wet land, or it might be the consequence of an overflow of water from

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a body of water like a river, lake, or ocean, causing part of that water to escape its customary confines. Since river floods are a naturally occurring occurrence, India is at significant risk of being flooded. Floods are a common occurrence that results in devastating losses of life, property, infrastructure, and public services. Damage from floods appears to be on the rise, which is cause for concern. Some

regions that were previously thought to be safe from flooding have experienced flooding in recent years. Between 1953 and 2016, an average of 1,650 Indians every year lost their lives as a result of floods, making India the country responsible for one-fifth of all flood-related deaths worldwide. In terms of economic damages, floods in India account for almost 68% of all disasters. It was reported in the Rajya Sabha that 1,808 individuals lost their lives and about Rs 95,000 crores in economic damages as a result of the flooding in India in 2018.

In addition to posing a threat to life and limb, floods may have a devastating impact on public and private transportation by damaging roads, railroads, and even telephone lines. Standing water and wet materials provide a major health risk, and sewage overflows are typical when floods disturb regular drainage systems in towns. Long after a flood has subsided, materials can still be damaged by the presence of bacteria, mould, and viruses. It is possible for floods to replenish soil nutrients in agricultural regions by dispersing enormous volumes of water and suspended material across extensive areas. Large volumes of swiftly moving water, on the other hand, can erode soil, leading to the loss of crops, the collapse of agricultural land and structures, and the drowning of farm animals. Extreme floods not only destroy houses, companies, and personal belongings, but the leftover water also wreaks havoc on buildings and their contents. Accidental releases of harmful products like paints,

insecticides, gasoline, etc., from damaged enterprises also pose a threat to the environment and animals. As tragic as it is, every year, flooding not only interrupts the lives of many people, but it often results in individual tragedies as people are swept away and drown.

Issues causing vulnerability:

1. Riverine Floods:

Annual or seasonal flooding is a common occurrence on certain rivers, whereas on others it may be rare or non-existent. Both the rate and the extent of river flooding can be used as additional categories. Both flash floods and regular floods fall under the first category of flooding. Extreme precipitation can create flash flooding in mountainous regions with steep slopes and thin soil. Such circumstances result in rapid river flooding after only a brief period of rainfall. Heavy rainfall in Jharkhand is to blame for the floods caused by the Durgapur Barrage's excessive release of water from the river Damodar. Typically, the situation becomes worrying when a deep depression travels from the Bay of Bengal to Gangetic West Bengal and onward to Jharkhand.

2. Water logging/Flooding due to heavy & continuous rainfall:

The following rivers, irrigation canals, and drainage channels usually overflow after a strong depression over Gangetic West Bengal providing persistent rainfall for more than four or five days. Hooghly, because of their proximity to storm tracks, are more likely to experience wet weather than districts located

further inland. Storms and depressions in the post-monsoon season (October and November) form in the Central and South Bay of Bengal before heading in a variety of directions. From time to time, these post-monsoon storms make their way toward the Gangetic West Bengal region, bringing with them torrential rain. It has been observed that the relatively low-lying parts of the coastal districts of West Bengal are often the first to be swamped by the local rainfall during storms. In the aftermath of this disaster, water from higher elevations flows downhill and exacerbates the problem. In addition, the flooding is made worse by the drainage channels deteriorating over time and/or a break in the peripheral embankments.

3. Drainage congestion

In many instances, what people refer to as floods are really brought on not by rivers running over their banks but rather by insufficient drainage services. This problem is caused by sloppy building and inadequate design in urban areas, which does not provide for adequate retention and percolation spaces. It is a result of the phenomena known as urban runoff. People have been known to encroach into drainage regions on occasion, to the point where they impede drainage pathways and disturb the natural drainage patterns. Another type of natural disaster that frequently strikes the lower areas is the inundation of a significant number of towns and communities. During normal years, there is almost never any damage, but during years with high flooding, a

tremendous toll is taken in the form of loss of cattle, crop, and dwellings, and occasionally human lives as well. There is no other solution but to only erecting ring bunds around low-lying agricultural regions is it possible to protect them from being flooded.

Control Measures

Natural disasters are inevitable, but they need not become catastrophic if proper mitigation and catastrophe risk reduction strategies are put in place. Hazards contribute to disaster risk when they interact with pre-existing vulnerabilities in human systems. The following are components of a comprehensive strategy for lowering and then eliminating disaster risks: By incorporating methods to reduce risk into all development initiatives, Combined efforts between the Federal and state governments to launch mitigation programmes in high-risk regions, Promoting and supporting mitigation efforts at the state level, Giving the preservation of historic buildings the importance it deserves and listening to locals about how they prepare for and deal with disasters. Reducing disaster risks is both a concept and a practise that entails systematic efforts to analyse and manage the causal factors of disasters, such as through limiting exposure to hazards, lowering vulnerability, managing land and the environment wisely, and increasing readiness in the face of adverse events. Mitigation refers to the process of taking the steps necessary to reduce or prevent the disastrous effects of risks and catastrophes.

This area is extremely vulnerable to flooding and will require ongoing flood prevention efforts. These natural disasters are unavoidable. Effective management and proactive risk reduction can significantly reduce the likelihood of these adverse events occurring. There should be equal focus on both post-disaster recovery and pre-disaster preparedness for effective flood control.

One of the most important aspects of improving disaster risk governance is increasing collaboration amongst different agencies.

Several factors contribute to floods, and if we don't take action, we'll have to deal with the consequences. Every year, floods cause havoc in many areas, and the government should help those places decide to permanently migrate. The government need to help with the relocation. To make their communities more food secure, communities should expand their cultivation and vegetation techniques. The Ministry of Agriculture and Cooperatives should supply useful plans. The government has to determine which regions have been affected by the flooding and which have not in order to allocate resources accordingly. Strong, massive dams are another way to rescue flood-affected neighbourhoods. Farmers can use this water for irrigation purposes later. We can educate the public on how tree planting may help mitigate flood damage. We may also advocate for tree planting as a means of mitigating the consequences. The government should provide an early warning and take

preventative actions.

Different approaches will be needed to deal with these two distinct sorts of problems, but they should all work in tandem with the inevitable progression of nature. Initiating change often requires organisational intervention, but given West Bengal's current population pressure and socio-political mind-set, participatory management and benefit sharing (a concept that has been enormously successful in the forest sector) is the only way to solve many of the state's water-related problems. Future plans must accommodate the changes already introduced into the system by humans and find a middle ground between human wants and natural necessities.

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