IJAER/ Nov-Dec 2021/Volume-10/Issue-6 ISSN: 2278-9677

International Journal of Arts & Education Research

An Evaluation of the Vulnerability of Flooding in Northern Bihar

Jay Nandan Prasad Sahani

M.Phil, Roll No: 140817

Session: 2014-15

University Department of Geography

B.R.A Bihar University, Muzzaffarpur

Abstract

The province of Bihar has complex financial elements at play, with high and determined floods, alongside emotional issues like the interweaving of land income and governmental issues, an absence of arranged foundation, imperfect provincial and post-frontier flood strategies, etc. In this paper, a nitty gritty examination of the issue of disastrous level flooding in Bihar has been finished by straightforwardly exploring countless related research papers and economic reviews, with a specific spotlight on the 2008 Kosi Floods. The whole review covers a time of 30 years (1990-2020) and presents an extensive survey of major questions and the quest for a few friendly answers for them. The paper starts with a careful assessment of the hidden causes and the comparing factual reports of misfortune and obliteration. Following that are the help and alleviation endeavors and drives of the organization and non-legislative associations. The foundation challenges, as well as strategy changes to bring the fundamental changes, have been tended to. The significance of involving remote detecting for flood planning has been featured. A point by point study is introduced on the issue of an absence of clean drinking water during catastrophes, right now accessible measures, and exploration being finished to foster manageable water filtration strategies; the significance of wetlands in flood relief; and debacle related mental problems like PTSD or potentially gloom in survivors. The motivation behind this examination paper is to introduce a thorough investigation of the circumstance of successive and rising flood levels in the fields of

Northern Bihar, their fundamental causes, and a resulting look for friendly answers for moderate and diminish the effect of the fiasco.

Keywords: Flood Mitigation Disaster-related Psychological Disorder, Infrastructure Challenges, Koshi Floods

Introduction

Floods in Bihar can be followed back to the entwining of land based income and ensuing governmental issues, bringing about a complex socioeconomic emergency, infrastructural imperfections (banks and upstream obstructions to hinder stream), pilgrim period powerless strategies, and the geomorphological advancement of waterways from the Himalayas, causing exorbitant siltation in the fields. Bihar has encountered the largest number of floods and related occasions in ongoing many years when contrasted with other Indian states. The Kosi and Gandak waterways in northern Bihar are the most inclined to flooding. The Kosi Stream, otherwise called the Distress of Bihar, streams from the Himalayas, through Nepal's lower regions, and into the alluvial fields of north Bihar prior to joining the Ganga. At the point when weighty downpours fall in focal and eastern Nepal, the water from the mountains streams into the significant watersheds of the Bagmati, Narayani, and, in particular, the Kosi waterways, which then, at that point, flood into the fields and marshes. Designs further open the blast doors on the Nepal side, possibly prompting flooding in Bihar, to forestall framework harm to the Kosi Waterway Flood and the Flood Pool's dikes.

Reported Loss and Damage

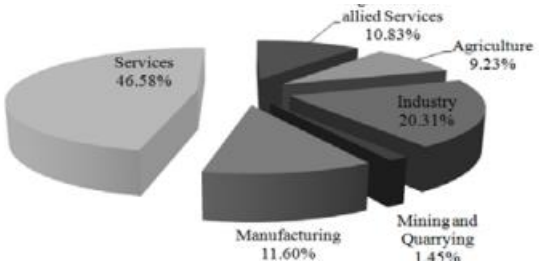
The significant waterways that are inclined to causing exorbitant flooding in northern Bihar are the Mahananda, Kosi, Bagmati, Burhi Gandak, and Gandak, all of which begin in Nepal. The streams Child, Punpun, and Phalgu have additionally caused flooding in some Bihar's southern districts. As per news reports, "the 2013 floods impacted over 5.9 million individuals in more than 3,768 towns across 20 districts, and the 2017 floods impacted 19 areas in North Bihar, killing 514 individuals and influencing 1.71 crore people. The new floods in Bihar brought about 1269 impacted towns, 88.47 lakhs impacted populace, and 130 losses. "The most horrendously terrible hit locale are that of Araria, Kishanganj, Madhubani, East Champaran, Sitamarhi, Sheohar, Supaul, Darbhanga, Muzaffarpur, Saharsa, Katihar, Purnia, and West Champaran" (Circumstance Report 2019, NDM, Service of Home Issues). Debacle planning and measurable overviews become vital in figuring out the surmised number of misfortune and annihilation in the state. The accompanying table features the impacted and harmed because of floods in Bihar from 1990-2012 according to a measurable report by the Bihar Government's Fiasco.

The board Division As per the Water Resources Division, "as of August 2020, floods had impacted 81.56 lakh individuals with 25 flood-related passings in 16 locale, with the water level of the Ganga rising fundamentally

to 5-24 cm in Buxar, Munger, Bhagalpur, Kahalgaon, and at Digha Ghat in Patna," with "the water level of the Ganga rising significantly to 5-24 cm in Buxar, Munger, Bhagalpur, Kahalgaon, and As per the report [Water Resources Office, Legislature of Bihar], "a sum of 12,670 individuals are stopped in 10 help camps in the state, and 653 local area kitchens are currently serving around 5.30 lakh individuals." Champaran, Darbhanga, Gopalganj, Khagaria, Madhubani, Madhepura, Sitamarhi, Sheohar, Supaul, Kishanganj, Muzaffarpur, Saran, Samastipur, Siwan, and Saharsa are the most terrible impacted regions. We can then build a plot from information given by one more comparable measurable report by the Bihar State Government for the lives lost in Bihar floods from 1990 to 2019 to graphically feature the issue of how the deficiency of lives has been essentially on the ascent because of the terrible effect of the state's continuous floods. The actions and alleviation endeavors, as well as strategy changes, are slowly becoming insufficient as the quantity of passing's increments over the long run. This could likewise feature one more key perspective in ecological concern, which is that rising climatic changes have been prompting flighty precipitation during rainstorm and rising water levels because of softening icy masses, which prompts an ascent in the water level of the streams they feed, in addition to other things. Comparable factual reports can give a decent gauge of the lamentable proclivity of the rising number of enormous scope floods to cause gigantic death toll and property.

Effect of Flood in Bihar

Bihar is one of the states in India whose economy generally relies either upon agribusiness or in farming exercises. Its portion in Net State Homegrown Item (NSDP) of Bihar is 29.33% which is extensively higher in contrast with commitment in public Gross domestic product which is 20.06% (CSO, 2014).



Adjacent to this reality around 78% of populace are associated with agribusiness and its partnered exercises either regarding cultivator and horticultural work (Fig.1). As indicated by legislature of Bihar 73% of the ranchers are little and minor ranchers, who develop their property as well as fills in as agrarian work. In this way, financial status of Bihar primarily relies on farming area. Geologically, northern Bihar is inclined to flood as it has enormous number of streams which conveys water of Himalayan bowl.

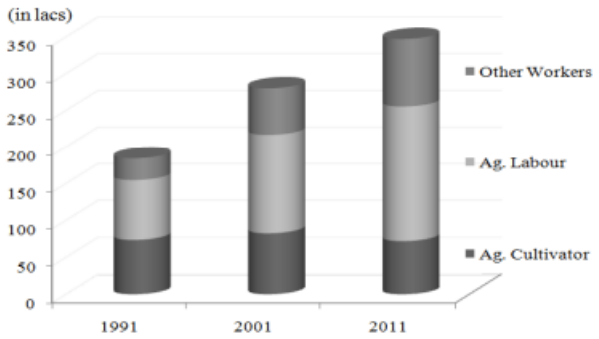


Fig.1: Number of workers under different economic classification

In event of flood, a huge number of hectares of rural land get lowered and silted and becomes uncultivable for few resulting years and stays as neglected field. A few hectares of land gets disintegrated and grains safeguarded by household gets obliterated which results into numerous little and minimal ranchers changed over in the class of landless (FAO, 2015). Ladies from weak families function as farming work yet because of flood this action is likewise totally halted. Additionally, ranchers whose paddy is obliterated, have no other choice except for to save their field decrepit for the whole editing season.

Conclusion

Bihar's northern plain gets water from streams that start in the Himalayas, making it powerless against outrageous floods and ensuing setbacks. The actual reasons for exorbitant flooding incorporate riverbank disintegration, deforestation, and blasts, as well as climatic changes, flighty precipitation, softening glacial masses, and spontaneous urbanization. Calamity planning and measurable studies uncover huge discoveries in the state's surmised misfortune and annihilation. WRD Plan Execution and Checking Framework alarm the weak populace. The state has started to utilize Observing Frameworks and Estimate Models (FFMs), as well as Social Examination Models for streams, Bank Resource The board Framework, Continuous Information Procurement Framework, Numerical Displaying for catastrophe planning, Unnecessary Help (GR), and plans like Tatkal Sahayata, in addition to other things. The state has likewise saved Rs. 1607.14 crore in help use for natural disasters in 2018-19, considering the yearly rains and flood-related harm. A few non-legislative associations and worldwide associations play played basic parts in the help and relief endeavors following the Bihar floods (and furthermore different states like Assam, Orissa and Maharashtra). Building houses and towns on braces and raised plinth levels, separately, to guard life and property while permitting floodwater to go through, could be a little infrastructural change in the quest for practical arrangements. Created flood determining and cautioning frameworks, orderly flood-risk zone planning, and proficient development dispersion of data to concerned bodies

are only a couple of the major non-primary measures to save lives and property. Remote detecting research has demonstrated to be very advantageous. High countries one more significant element to consider is reforestation and afforestation. Another possibly encouraging arrangement that requires creative foundation plans is saving grounds to oblige floodwaters and redirecting abundance water from dynamic channels to various palaeo-channels during high streams. Long term arrangements incorporate structure stockpiling repositories to hold abundance floodwater from waterways.

References

1. Central Statistical Organization (CSO) (2015) Ministry of Statistics and Programme Implementation, Government of India, New Delhi,
2. Directorate of Economics & Statistics Department of Planning & Development Government of Bihar (2015) Analysis of Budgetary Transactions of Bihar, Patna Directorate of Rice Development (2015) Rice in India - A Status Paper, Ministry of Agriculture & Farmer's Welfare, Patna, Bihar < http://drdpat.bih.nic.in/>
3. Disaster Management Department Government of Bihar (2015) Annual Flood Damage Report, Bihar, Patna Food and Agricultural Organisation of the United Nations (FAO) (2015) The impact of disasters on agriculture and food security, Rome, Italy
4. Gole, C. V. and Chitale, S. V. (1966) Inland delta building activity of Kosi river. Journal of the Hydraulics Division, American Society of Civil Engineers, v. 92, pp.111-126.
5. Government of Bihar (2016), Bihar Economic Survey2015-16, Ministry of Finance, Patna, March, 2016
6. Institute of Applied Manpower Research (2011) India Human Development Report 2011: Towards Social Inclusion, Planning Commission, Government of India, New Delhi.
7. National Disaster Management Authority (2008) Government of India, National Disaster Management Guidelines, Management of Floods, New Delhi, India
8. Sinha, C.P. (2008) Economic & Political Weekly, Management of Floods in Bihar, New Delhi, November 15, 2008
9. Water Resources Department (2013) Flood Report 2013, Flood Management Improvement Support Centre (FMISC),
10. Water Resources Department, Government of Bihar, Patna, (2013).
11. Samela, C.; Manfreda, S.; Troy, T.J. Dataset of 100-Year Flood Susceptibility Maps for the Continental U.S. Derived with a Geomorphic Method. Data Brief 2017, 12, 203–207.

12. Tripathi, G.; Parida, B.R.; Pandey, A.C. Spatio-Temporal Rainfall Variability and Flood Prognosis Analysis Using Satellite Data over North Bihar during the August 2017 Flood Event. Hydrology 2019, 6, 38.
13. Blöschl, G.; Hall, J.; Viglione, A.; Perdigão, R.A.P.; Parajka, J.; Merz, B.; Lun, D.; Arheimer, B.; Aronica, G.T.; Bilibashi, A.; et al. Changing Climate Both Increases and Decreases European River Floods. Nature 2019, 573, 108–111.
14. Loukas, A.; Garrote, L.; Vasiliades, L. Hydrological and Hydro-Meteorological Extremes and Related Risk and Uncertainty. Water 2021, 13, 377.
15. Haltas, I.; Demir, I.; Yildirim, E.; Oztas, F. A Comprehensive Flood Event Specification and Inventory: 1930–2020 Turkey Case Study. Int. J. Disaster Risk Reduct. 2021, 56, 102086.
16. Kulp, S.A.; Strauss, B.H. New Elevation Data Triple Estimates of Global Vulnerability to Sea-Level Rise and Coastal Flooding. Nat. Commun. 2019, 10, 4844.
17. Shivaprasad Sharma, S.V.; Sharma, S.; Roy, P.S. Extraction of Detailed Level Flood Hazard Zones Using Multi-Temporal Historical Satellite Data-Sets—A Case Study of Kopili River Basin, Assam, India. Geomat. Nat. Hazards Risk 2017, 8, 792–802. [CrossRef]
18. IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change; Cambridge University Press: Cambridge, UK, 2021.
19. Boyaj, A.; Ashok, K.; Ghosh, S.; Devanand, A.; Dandu, G. The Chennai Extreme Rainfall Event in 2015: The Bay of Bengal Connection. Clim. Dyn. 2018, 50, 2867–2879
20. Chandrababu, D. Record Rainfall Wreaks Havoc in Chennai. Hindustan Times New Delhi, 8 November 2021.