



Bihar highly vulnerable to climate change, says study, but lacks action plan

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Fourteen out of 50 districts most vulnerable to climate change in India, are in Bihar, according to a latest [study](#), *Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework*. The study by the Indian Institute of Technology (IIT) Mandi and IIT Guwahati in collaboration with the Indian Institute of Science, Bengaluru identifies the most vulnerable states and districts of India with respect to current climate risks and finds Bihar, Jharkhand and Assam have over 60% districts in the category of highly vulnerable districts. The study recommends prioritisation of adaptation interventions in all these states.

Among the vulnerable states, Bihar in fact has recently abandoned a [draft climate action plan](#) submitted by the Department of International Development (DFID), a United Kingdom government agency (which, since late 2020, is known as the Foreign, Commonwealth and Development Office).

The state is unique in its vulnerability to hydro-meteorological disasters as the northern part of Bihar faces annual floods and the southern part is prone to droughts. According to a 2014 [study](#) in Journal of Natural Sciences Research, 21.1 percent of the total area of Bihar falls in seismic Zone V. While 27 out of 38 districts of the state are fully affected by high-speed winds of 47 m/s density. Climate change is making extreme climate events more frequent in the state and the incidences of landslides, flash floods, and droughts are on the rise.

In the last two decades or so, like any other state, Bihar too has seen intensified public discussions on climate change and its impacts. But indeed very little has reflected in policies. The reason for the political apathy perhaps, tends to rise from the sustainable development challenges – growing populations and limited resources.

Drivers of climate change vulnerability for Bihar

The measures to climate change adaptation planning and investment are only possible when the states have an assessment of vulnerability.

According to the IIT study, lack of forest area for the rural population, high yield-variability of food grains, the prevalence of rainfed agriculture, lack of crop insurance, compounding agricultural vulnerability, high sensitivity of the health sector (disease prevalence) coupled with a low adaptive capacity due to a lack of healthcare workers are the major drivers of vulnerability for Bihar. The study also recognises a high proportion of Below the Poverty Line (BPL) population, prevalence of marginal and small landholdings, and lack of women's participation in the workforce, low road density, lack of implementation of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) as the other drivers of vulnerability.

Fourteen (out of 50 in India) most vulnerable districts to climate change that are in Bihar include Araria, Kishanganj, Purnia, Jamui, Sheohar, Madhepura, Purbi Champaran, Lakhisarai, Siwan, Sitamarhi, Khagaria, Gopalganj, Madhubani and Buxar.



A 2020 picture of Laungi Manjhi digs up a canal single-handedly to stop migration from his village. This drought-prone village had no source of irrigation but rainfall. He channelised the flow of rainwater from the mountains to his village. Photo by Rohi hin Kumar

Apart from these, about 80% (31 out of 38) of the districts in Bihar are among the top 25% most vulnerable districts in the country. Lack of area under horticulture, low coverage of central crop insurance schemes and prevalence of small and marginal landholders unable to make adequate decisions about when to sow, what to grow, and how-to and lack of inputs along with low adaptive capacity amount to major drivers of vulnerability in these districts.

The study mentions an elaborate list of indicators and the rationale behind the selection of that particular indicator. For instance, monthly income is chosen as one of the indicators because people with extremely low incomes are among the most vulnerable because they have little or no financial capital. So, they have the least capacity to adapt to impacts of climate risks. Similarly, livestock to human ratio is considered because agricultural loss due to climate events can be compensated by income capitalised from livestock. Livestock can be sold in times of need hence, contributes to the reduction of vulnerability.

Challenges to sustainability

On October 2, 2019 the Bihar chief minister Nitish Kumar [launched](#) the *Jal-Jeevan-Hariyali* campaign which was to be implemented at the cost of Rs.24,524 crores (Rs. 245.24 billion). In his note, he said, “The state government through Jal-Jeevan-Hariyali intends to limit the impacts of climate change, promote ecological balance, and promote water conservation.” The CM [hailed](#) the campaign at the UN Climate Change Round Table in 2020, and dwelt upon the benefits of *Jal-Jeevan-Hariyali* started across the state that claims to protect water, life and greenery.

Experts argue that *Jal-Jeevan-Hariyali* is neither a holistic nor a better-implemented program undertaken by the state government. “The major component of this program (Jal-Jeevan-Hariyali) is to deal with water scarcity in major parts of Bihar. There are various elements to this project. However, frankly speaking, the bureaucratic implementation of the program is not satisfactory,” said a senior official of the Science and Technology Department. He agreed that the state lacks a sustained action plan, “Our (state government’s) intention is very noble. Officials in theory understand that climate change is a serious issue. Putting theory to practice is where the challenge lies. Just for an example, for years now, experts have been saying that dams in north Bihar are doing more harm than good. But bureaucracy has turned a deaf ear to it. Floods have become a business. Everyone

knows, every year the region would be ravaged by floods, the government would compensate. It has been normalised. This situation could still be averted now. Floods recharge the soil fertility every year. The fertility can be utilised by the government by enabling the farmers. It is one such example. Similarly for South Bihar, restoration of wells and canals is needed. It's not that we didn't have the system or that what I am talking about is something alien. It requires better planning and coordination between various departments."

Similar concerns were also shared by an official at the state's Environment, Forest and Climate Change department. "We are witnessing effects on the environment due to climate change in the form of various extreme weather events. For instance, lightning strikes, devastation by floods have only increased, soil erosion is engulfing villages, deaths due to extreme heat waves and many such other climatic events have grown exponentially in the past few years. These are impacting our people socially as well as economically. Thus, the state's growth and development is also halted and offers little opportunities to rebuild economies," he said passionately and expressed his helplessness citing lack of a comprehensive plan to combat the challenges of climate change. "Having said that, we officials too need timely workshops to understand the dynamics of unfolding climate crises so that it enables us to improvise our existing plans as well as devise new plans," he added.



A farmer at work weeding in a maize field. Photo by M. DeFreese/CIMMYT.

However, Anamika Barua, Professor at IIT Guwahati, one of the researchers part of the IIT study views it differently. "Bihar does not need to do something extraordinary to make their state resilient to climate change. If the state government is basically talking about reducing poverty, enhancing the sources of livelihood, better health facilities, strengthening institutions – all these are going to make your state climate resilient," said Barua.

"Bihar basically needs to mainstream the adaptation strategies within the development. One of the factors of vulnerability continues to be the lack of alternative sources of livelihood. A large chunk of people in Bihar are dependent on climate-sensitive livelihood, for example, agriculture, fisheries, livestock, etc. then, of course, larger section of people are vulnerable to climate change. Thus, the state needs to also focus on non-farming sectors, by doing so you build a climate-resilient community," she adds, "Districts in Bihar are vulnerable to socio-economic, biophysical and institutional factors that are drivers of vulnerability for climate change."

Need for an action plan

IIT's study is not the only one that has highlighted the fact that the state is highly vulnerable to climate change. Annual floods of north Bihar and annual droughts of south Bihar open up the discussions every year on how hazardous are the impacts of climate change for the lives and livelihood of the people of Bihar. But time and again the discussions have found very little mention in the policymaking.

In 2015, the state government came up with [Bihar State Action Plan on Climate Change](#) that put across sectoral plans to tackle the issue of climate change, however, not much of it was put to use. In the same year, the state government resolved to the centre's mandate on climate change in light of Paris declaration at the United Nations conference of climate change. The state government teamed up with the Department for International Development (DFID) to prepare an action plan for climate change.

The DFID in its draft plan suggested a plethora of smart strategies – strengthening agriculture chains, ensuring minimum support price to farmers, de-siltation measures of Kosi, development of agro-based industries, and others. Some of these strategies also find their mention in the state government's action plan on climate change in 2015. But reportedly, the draft plan by DFID was not approved by the government and later withdrawn for “unknown reasons”.

Dipak Kumar Singh, Principal Secretary of the department of the Forest, Environment and Climate Change department could not be contacted for a quote. However, an official from his department said, “We will soon have an action plan. Climate crisis is one of the top priorities of the state government.”

In 2019, CM Nitish Kumar announced that a separate unit of analysts and researchers would be constituted within the Environment, Forest and Climate Change Department but so far it isn't in place yet. Reportedly, the recruitment process was hampered due to the outbreak of COVID-19 pandemic.

Speaking on the need for an action plan for climate change in Bihar, Anamika Barua said, “Bihar definitely needs an action plan. The inputs of our study could possibly be very helpful in their state action plan for climate change.” Barua also said that after the publication of the study by IIT, many state governments have approached the researchers and shown keen interest in chalking out a plan further. For now, the Bihar government hasn't approached them.

Source: <https://india.mongabay.com/2021/05/bihar-highly-vulnerable-to-climate-change-says-study-but-lacks-action-plan/>