

CASE STUDY

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Flood protection: Spur as an indigenous solution





Bihar is known as a state of rivers. Thirty-five rivers and their eighty-five tributaries criss-cross across this vast land, creating a maze of waterways. Historically, north Bihar has been called a '*Nadi Matrik Desh*'. The more well-known of these rivers in north Bihar include Kosi, Gandak, Budhi Gandhak, Kamla, Balaan, Mahananda, Ghaghra and Sursar. Kosi River flows from the highest mountain peak, Mt Everest and the Kanchenjunga ranges, and is revered in northern Bihar as a mother or Goddess. In this region never has the Kosi River been viewed as a river of sorrow by our ancestors, as they were well aware of nature's bounty, its set of rules, cyclic character, and its ebb and fall. They were in harmony with its character, learning to live in tune with its both bountiful and rapacious nature. Many of our ancient scriptures and folk tales are proof of the fact that since

ancient times, people of this region have managed the floods, water and their land with traditional knowledge, natural resources, and inherited technical know-how, living along the banks in sync with the river.

However, after independence, the outlook changed. Stress was laid on the state's development, with greater emphasis on flood control measures, electricity production and other such multi-faceted government schemes. There was a flurry of activity to construct more and more embankments in the state. In this mad rush, Kosi basin too became playground to newly constructed embankments.

In the eastern Kosi basin, areas that lay outside the embankment found relief from floods, but for the villages that were inside the embankment area, the situation deteriorated. Earlier, the rivers were free, and their flow

unchecked. They would flow unbound for two, three days during the monsoon, and then revert back to their normal flow. But after the construction of the embankments, lakhs of people living in the 368 villages here face floods every single year. Every time that happens, the government doles out few benefits or some schemes for the flood affected populace. And in the last few years, the government has spent crores towards flood control measures in these areas. How any of this money spent actually helps the flood situation is another matter for discussion, but when this is done without understanding the true nature of the rivers, sidelining traditional knowledge, ignoring the scientific understanding of the basin, the situation only worsens. An example of this short term thinking is Ghooran village in Supaul block, in Supaul district itself.

Local knowledge and technique

Ever since the Mahasetu (Road bridge) construction, the flood situation to the west or the lower part of Kosi river has worsened immensely. Ghooran village is nearly twenty kilometres away from Mahasetu, but every year the fast current in the river causes deep erosion, destroys homes and flattens flourishing crops in the village. Under Ghooran *panchayat* there are three villages, Ghooran, Nirmali and Ghivak. Of these the original land of the two villages, Nirmali and Ghivak, has been lost to the river. The villagers now live in small groups around the same area, even though Ghooran still exists on its original land. People from Ghooran and the neighbouring villages like Nirmalli, Dhivak, Bela, Balba, Dumariya, are all unhappy with the government led flood control and erosion reduction measures. In spite of the large sums of money spent, erosion has not reduced, and to top it all when the engineers and the contractors begin construction work without asking for their opinion or suggestions, their anger and disappointment only increases.

In 2018, another milestone in this continuous chain of events to reduce erosion was to build porcupine structures and use earthwork to try and alter the direction of the river to the west of Ghooran village to avoid erosion. The location where these porcupine structures were being constructed were not in the correct direction of river flow and planned at places which would not stop the river erosion and land cutting. The



older and more experienced community members tried to dissuade the engineers and the workers of the futility of this endeavour, but armed with their bookish knowledge and technical superiority they did not listen and continued with their tussle against the river. Even before the monsoon season could begin, the villagers were apprehensive that this scheme would fail. So, the villagers discussed between themselves, and decided to take

matters into their own hand, to find their own solutions conducive with the environment. Instead of trying to divert the whole river, they diverted a portion of it by constructing the porcupine structures at places where it was appropriate to stop erosion. The village land at the river bank was under direct attack of the river, and hence needed protection against failure. The porcupine structure was constructed with cement



pillars, soil bags and bamboo, which protruded into the river, and was about 15-20 feet broad and had a length of 750m. And they were successful in preventing erosion in Ghooran and its neighbouring village. They took these pillars and empty bags from the government agencies by force, and using their own manpower succeeded in their work.

The villagers strongly feel that the government must carry out their schemes keeping them in confidence, so that with lesser money spent the required output can be envisioned. But the villagers think that the

government has no confidence in their inputs and they do not get their due respect. They are both disheartened and disillusioned and feel that the government has learnt little from its past experiences and will do the same exercise in the coming year too. If the government would follow an inclusive process and involve the affected villagers and their experience, knowledge and techniques in their proposed schemes, only then can these villagers break through this cyclic phase of floods and erosion, and be safe. They are of the opinion that from Bela to Ghooran, to the east of the river, for a length of two kilometres of the river, at a

distance of about 100 feet and for a width of 20-25 feet on the banks of the river, the placement of porcupine structures at appropriate places can be successful. In some places this width can be 5 feet as per the circumstances to ensure improved feasibility of this technique. They agree wholeheartedly that this successful technique can benefit villages that lie from Bela to Ghooran and aid flood control and reduce erosion.



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