

[The Kosi Untamed](#)

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By R. KRISHNAKUMAR
recently in north Bihar

The floods-prone Kosi is ‘Bihar’s sorrow’, a nightmare in flood management. Efforts to contain the river’s annual season of fury by building embankments have not succeeded. A trip along the Kosi, in the thickly-populated and desperately poor northern Bihar, that revealed tales of woe.

FOR the third time after sunset, Ganga Prasad Yadav had predicted “landfall” in two hours, when the boat rammed yet again into silt. As his fellow boatmen jumped into knee-deep water in the middle of nowhere in the Kosi, Ganga Prasad remained motionless - a silhouette on the wooden ridge, but for the early-night glow off his silver teeth. Rescuing a wooden boat from the Kosi’s silt was an everyday chore that would be done in good time. He therefore peered eagerly at the small crowd inside the boat in the hope that someone would play the tape-recorder once again. Rarely had Ganga Prasad listened to himself singing the Ramayana, squatting on the edge of the boat, for night travellers crossing the endless river.

Time has no meaning on the Kosi, as is the case in most parts of north Bihar, where urban priorities are often made to stand on their heads. It was six hours since Ganga Prasad and his friends had raised their oars and started the return journey with the visitors to Ghonghepur village on the edge of the western embankment of the Kosi. For the team of journalists, who had made their onward crossing downstream in five hours, the string of villages so full of life within the river were the least of the day’s surprises.

From the mainland village of Baluaha to the east, the Kosi was but a broad expanse and the villages long green beads in its middle. The western embankment was a distant mist. The boat had struck the bottom right in the heart of the Kosi, when the river unveiled ever-changing, ever-recharged channels of muddy water and silt, small trees, paddy fields, cattle and huts. For every serpentine channel that the Kosi made within itself, it clogged and choked another under silt. Navigation on the Kosi's bosom was therefore a necessary discovery on foot for the boatmen who took turns to pull the boat with nylon ropes through freshly deposited mud, through tall grass and shrubs, sometimes along the crumbling edges of island-villages.

Water-logged fields rendered unfit for cultivation in north Bihar. This road joins Saharsha with Mahishi.

The Kosi was full of freshness: playful river dolphins, spotlessly white cattle dotting rows of jute-and-bamboo huts, handpumps on the riverbanks, rising above flooded tubewells, women in canoes that were full of fodder, a friendly hoot, silence that made music out of the sinking footfalls of boatmen. Momentarily at least, the Kosi seemed like a different world.

But remove the lens, as it were, and the larger setting is as muddy and depressing as the Kosi silt. Northern Bihar, through which the Kosi and all other major tributaries of the Ganga flow, is among the poorest and the most backward regions of India. In many parts of the 21 northern districts of the State, which are among the least urbanised parts of the country, flood-mauled gutters masquerade as highways. Nights underline the absence of electricity. There are virtually no transport and communication facilities. The first link to settled society down south, a bridge (at Mokameh) across the Ganga which flows west to east dividing the State, is only three decades old. The pervading lawlessness in north Bihar had so far been encouraged mostly by isolation - not by an organised awareness of caste or by social and political consciousness, unlike in the case of the South. However, that is changing - for the worse.

North Bihar's worst curse is not lawlessness or even the lack of developmental infrastructure - it is geography. Geography, paradoxically, is its blessing too. The plains of Bihar, adjoining Nepal, are drained by a number of rivers that have their catchment in the steep and geologically nascent Himalayas. For centuries, torrential rains in the Nepal Himalayas have made these rivers - including the Ghaghra, the Gandak, the Buhri Gandak, the Bagmati, the Bhutahi Balan, the Kamala, the Kosi and the Mahananda - carry a very high sediment load down to the plains. North Bihar's plains are hence one of the most fertile regions in the country, and settlement began here as early as the 7th century B.C. Many locations in the region are associated with legends, including those in the Ramayana and the Mahabharata. Several of these were centres of the first kingdoms of India, such as Magadha; the first empire of the Mauryas, had its capital in the North Bihar plains.

Water in a protected village in the foreground, with the embankment in the background. Embankments have largely proved counter-productive in the war against floods here.

Once the rivers enter the plains much of the silt begins to settle, raising the beds of the rivers, shrinking their channels, blocking their flow. Come the rainy season and the rivers cut fresh paths through the sediment. Most rivers of north Bihar have done this extensively, the Kosi being the most notorious example. The interlacing channels of the Kosi, which confuse Ganga Prasad and other boatmen in Saharsha district, in a way symbolise the scourge that is endemic to north Bihar rivers.

The silt yield of the Kosi, one of the largest tributaries of the Ganga, has been estimated to be about 19 cubic metres per hectare per annum, which is among the highest in the world, according to a report of the Centre for Science and Environment. The river is better known today as “Bihar’s sorrow”, for the devastating floods that it causes and, more particularly, for its disastrous shifting of course. It has been variously estimated that in the last 250 years the Kosi has moved westwards by an astounding 210 km, that in 200 years it has shifted its course by about 130 km, and so on. As satellite pictures indicate, the river, which flowed east of Purnea (in the 18th century, according to some people) has moved, through more than 12 distinct channels, to its present course, on the east of Saharsha. The root cause of such shifting of course by the Kosi is the steepness and fragility of the Himalayas where it originates: the river carries five times the sediment load of any other river in Bihar.

Now, a silent revolution is on in north Bihar. Organisations have been sprouting in every other locality against what has been independent India’s solution to the waywardness of the Himalayan rivers - trying to contain them within sand-and-mud embankments on either side. For example, as the length of the embankments along the Kosi has increased, the string of activist organisations representing what is termed as “Kosi sufferers” too have grown. The people indeed “suffer” because of the Kosi; however, engineering solutions initiated by successive governments have made its lethal mood swings inevitable.

“It is like tying a snake into knots to keep it in good humour,” says Dinesh Kumar Mishra, an engineer-turned-activist-researcher and convener of the Barh Mukti Abhiyan (BMA), who is in the forefront of north Bihar’s campaign against man-made flood disasters and putting the blame for them on the rivers. “By building embankments on either side of a river and trying to confine it to its channel, its heavy silt and sand load is made to settle within the embanked area itself, raising the river bed and the flood water level. The embankments too are therefore raised progressively until a limit is reached when it is no longer possible to do so. The population of the surrounding areas is then at the mercy of an unstable river with a dangerous flood water level, which could any day flow over or make a disastrous breach.”

At Shatwar in Mahishi block of Saharsha district, villagers Ramakanth Mukya and Rajendra Jha say that their land, though outside the Kosi’s eastern embankment, has been

under stagnating water for months. Manik Chandra Jha, a teacher of the local school for 30 years, said that the village was low-lying *vis-a-vis* the Kosi, and, that in addition to the eastern embankment a road had been constructed parallel to it, blocking the natural drainage into the river. Rainwater stagnates on land that was used for cultivation. So do the waters of the small streams that used to flow into the Kosi. Mosquitoes, not fish, breed in the stagnant, oxygen-starved water.

People living on an embankment meant to protect the village. Sometimes it is the only dry stretch of land available.

“This is a ubiquitous sight in north Bihar,” says Mishra. “Rainwater collects outside the embankments and the rise in the water level within causes seepage through the embankments to the “protected” areas. A more serious problem arises when the embankments on the main river prevent the entry of a tributary. Sluice gates are constructed, but they have to be kept closed during the rainy season, as the flood waters of the main river would otherwise force their way through the tributary into the protected areas. But closed sluice gates during the rains also mean that the tributary would submerge the protected areas. So the tributaries also have been embanked, and rain and flood water stagnates between the embankment of the main river and that of the tributary. It has to be pumped out, or people have to wait endlessly, sometimes for more than a year, for the water to evaporate.”

The case of Ghonghepur village, at the southern tip of the western Kosi embankment, is typical. According to the original plan, the embankment was to have ended 4 km upstream. However, as misfortune would have it, it was extended up to Ghonghepur. It now runs 126 km down the river, to the west, from Nepal and ends abruptly at Ghonghepur. Beyond this point the Kosi started spilling back into the village, submerging areas that were until then free from floods, according to Mishra.

Politicians and government officials came to the village again. Another embankment was constructed at right angles to the western embankment, to prevent the Kosi from entering the village. But during the next monsoon, floodwaters of the nearby Kamala river were blocked by the new ‘T-spur embankment’. The village today is under water for nearly six to eight months a year, according to its residents.

At Belwara, on the eastern Kosi embankment, Vidyanand Janand, who introduced himself as a “lecturer”, said that before the embankments were built the river would swell only gradually giving the people sufficient warning to move to safe places. Moreover, he said, the farmers used to welcome the annual floods, which would certainly recede after replenishing the soil with fertile silt. “Today it is hazardous to live near the embankments. Waterlogging has left valuable land unfit for cultivation. Productivity has come down drastically. Yet people live there with a false sense of security.”

According to one estimate, there is permanent water-logging in over 1,82,000 ha of land outside the eastern Kosi embankment alone. The State Government claims that it had drained out water from 65,000 ha but villagers living near the embankment and activists

of the BMA point out that it has been of no use because the major sluices at Basua and Belwara are as good as closed permanently, cancelling any effect of drainage.

Ever since embankment-building started on the Kosi, the other north Bihar rivers - the Gandak, the Mahananda, the Burhi Gandak, the Ghaghra, the Kamala-Balan, the Bhutahi Balan and the Bagmati, in addition to the Ganga - too have been embanked systematically, producing the same problems. The length of embankments along the Bihar rivers grew from 160 km in 1954 to 3,465 km in 1998 (at a cost of Rs.746 crores). Simultaneously, a network of roads and railway lines were built east to west, cutting across the natural drainage system in the plains where all the rivers flow from north to south. Thus, embankments that were meant to control floods have resulted in the flood-prone area in north Bihar going up from 2.5 million ha in 1952 to 6.89 million ha in 1994.

A village used to exist here. Even as the Kosi devours an area, it yields land elsewhere.

The social and environmental costs of this have been heavy. But the benefits to the well-entrenched network of politicians, engineers and contractors from the construction of embankments (and roads), the repairs to them, and the flood relief work have been enormous.

Bihar is India's most flood-prone State, with 76 per cent of the population in the north living under the recurring threat of devastation. This year monsoon floods started early in several districts of north Bihar. The very first spell of rain breached three embankments, flooded 550 villages in eight districts, and displaced more than a million people. At least 12 people were killed in the first week of August; by September 6, the toll mounted to 282, with all the major rivers, including the Kosi, the Bagmati, the Gandak, the Mahananda and the Ganga flowing above the danger mark and threatening to breach their embankments.

On August 5 itself, the annual ritual of shifting the blame to the Centre was performed in the Legislative Council by Chief Minister Rabri Devi and State Water Resources Minister Jagdanand Singh. Rabri Devi told the Council that it was beyond the State's means to check the annual floods. The onus, she said, was on the Centre. Replying to a special debate, Jagdanand Singh said: "It is impossible for us to save north Bihar from floods without the cooperation of Nepal. It is for the Union Government to take up this issue with that country."

The State Government skirted the issue of embankments and referred to a 50-year-old proposal to construct a high dam across the Kosi at Barakhshetra in Nepal. Such a dam has been widely projected (but rarely believed) as the true solution to the problem of floods in north Bihar. Year after year the flood-hit population has been fed on this mirage of the dam in Nepal, which would store the Kosi's monsoon deluge and release it during the summer months to help irrigation and the production of electricity.

Life on the Kosi's western embankment. To left is the Kosi, and to right the Kamla Balan. The rivers flow parallel to each other for a long distance and the embankment acts as a wall in between.

But the Government has had no clear answers to questions about the safety of such a dam in a highly seismic zone, about the heavy siltation that could fill it too early, about the enormous quantity of water that would continue to flow down the Kosi because it has a huge catchment below the proposed dam. Nor does it say anything about the huge construction cost that would put the price of power and water from the dam above the reach of the ordinary people, or about the opposition in Nepal to such a project.

The effect of the dream is beginning to wear thin. At a meeting organised in Belwara to discuss the issue of embankments, the residents of the villages were sharply divided though many were unaware of the factors that spell disaster from the high dam: "We have been doctored into believing that when there is a lot of water, it is because the Nepal Government releases it to India. Can't Nepal take water to its own land?" one of them asked. Another said: "If the water flows naturally as it did in our villages before these embankments were built, a flood would spread slowly and affect us less. But add to these embankments a big dam in Nepal. What will happen if it bursts, as the embankments do now?"

Along all the northern rivers, breaches in the embankments, both natural and man-made, are becoming more frequent.

The State Government describes those who cut the embankments to save their own lives as "anti-social elements". Vijaya Kumar, an activist of the BMA, says: "In many villages, people are assisted in such endeavours by local government officials. Clearly, an enraged river has no respect for authority."

Social and environmental groups are joining hands to conduct awareness camps in the island villages in the Kosi heartland. There is a clamour for "the total liberation of the Kosi", "the total abrogation of the Kosi project", "letting the river have its original space right down to the Ganga". More practical suggestions include "controlled flooding through carefully managed breaches". There are really absurd ones too, such as "building embankments parallel to the existing ones".

Waiting for ferry boats on the eastern embankment of the Kosi. Floods often force them to leave their villages, but later they return.

Elsewhere, occasionally, prominent individuals like Bihar's Inspector-General of Police Ramchandra Khan catch the imagination of the people by leading villagers to the Kosi to read poetry to the river and to pray to and plead with it: "Come back to us!" Non-governmental organisations (NGOs) like the BMA have decided to move the National Human Rights Commission against the Government's neglect of more than 10 lakh "Kosi sufferers".

In the past three to four decades, the population has grown rapidly and human occupation of the flood plains of the river has reached alarming proportions. The embankments have become so well-entrenched in north Bihar's populous landscape that when there are people who welcome their dismantling (for example, people living within the Kosi embankments) there will be others who want them to continue, until the threats to their own interests end. It has become a personal issue rather than a social problem for many. Was there not the clamour for taming the Kosi in pre-Independence days? And if embankments are dismantled completely, as the demand goes, who would account for the resultant immediate havoc? Therefore, the Government and its engineers conveniently ask: what exactly is the solution, if it is not the dam in Nepal? The answers are as unclear as the idea of the dam in Nepal.

The embankments have made north Bihar's human and environmental tragedy a formidable jigsaw puzzle. There are too many pieces, too many gaps. A lot of pieces convey images of poverty and ignorance, apathy and mismanagement, corruption and fatalism, which are so characteristic of rural Bihar society.

This feature is based on a study tour of flood-ravaged north Bihar organised in early August by Panos South Asia for a team of South Asian journalists. The Kathmandu-based media support organisation sponsored the tour, one of a series of such tours, as part of its efforts towards enhancing information flows on water management issues in South Asia.

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