



Everybody loves a good flood

By Darryl D'Monte

Although the intensity of floods has been increasing, it is not primarily due to deforestation. It is the failure of the so-called modern world to come to terms with this natural phenomenon that is aggravating the situation. As long ago as 1937, the chief engineer of Bihar, Captain G F Hall, said that by building embankments "we are storing disaster for the future"

Some years ago, Ashok Mahadevan, editor of the Indian edition of the *Reader's Digest*, called me to check my views on an article he had received from two American scientists, which contradicted the view that floods in eastern India, and to a larger extent, Bangladesh, were caused by deforestation in the mountains of Nepal.

I hotly denied that this could be correct, since it went against the tenet so often propounded by environmentalists. I thought, at the time, that this was one of those counter-arguments put forward by some scatty scientists -- and given full coverage by a sceptical media -- that seeks to debunk the conventional and correct view.

It was a few years later, in 1991, that the Centre for Science and Environment (CSE) published a major study titled 'Floods, Plains and Environmental Myths', which it reprinted in 1996. To my surprise, it made out a case against deforestation being the major cause of floods in this region. As it pointed out: "Every time there is a flood in north Bihar, the chief minister gets an opportunity to blame Nepal. Every time there is a flood in Assam, the local leaders blame the upland tribal communities and their shifting cultivation practices in Arunachal Pradesh, Nagaland, Meghalaya, Manipur and Mizoram. And every time there is a flood in Bangladesh, the president of Bangladesh can indulge in rhetorical politics against India."

This blame-game has continued for decades. The CSE's document put a cat among the pigeons, with many hardened environmentalists condemning Anil Agarwal and his colleagues for, as they saw it, providing a justification for Nepal and India's northeastern states not to crack down on deforestation. However, hard scientific facts, even if they go against the grain of long-held beliefs, always have to be respected.

After some months of controversy, most environmentalists -- me included -- tend to concede that their earlier assumption was incorrect.

I garnered more evidence when I led a team of journalists from Bangladesh, Nepal and India on an extended field trip called 'From Mountain to Delta' in 1998, precisely to see whether journalists could cut through the welter of accusations and counter-accusations on this tendentious subject. In Kathmandu, we were briefed by two European scientists from the [International Centre for Integrated Mountain Development](#) (ICIMOD), who proved conclusively that the torrents of water which deluge eastern India and Bangladesh are, in fact, caused by the monsoon, and the lack of green cover has a minimal impact on this natural phenomenon.

Although the intensity of floods has been increasing, it is not primarily due to deforestation. In fact, floods are an annual occurrence which have been taking place for millennia and, indeed, actually are also a boon in some respects because they carry a load of silt -- sometimes believed to be the richest soil in the world -- which is deposited in the plains and benefits farmers. It is the failure of the so-called modern world to come to terms with this natural phenomenon that is aggravating the situation.

Recently, I obtained yet more evidence of man's folly in trying to combat floods at an international conference on adapting to climate change, organised by the Delhi-based NGO, Winrock International. Dinesh Mishra, a civil and structural engineer who runs the Barh Mukti Abhiyaan (somewhat confusingly, Freedom from Floods Campaign), presented a paper on flood control, 'Where technology gets stuck', based on the Ganga-Brahmaputra basin.

He has delved deep into history to cite where and when humans first tried to control what is often described -- by the CSE itself, in an earlier pamphlet -- as "the wrath of nature". The belief is that if rivers spill over their banks and invade homes and fields, the solution is to build embankments along their courses so that the rivers are kept confined. The first such initiatives were in the Hwang Ho basin in China in the 7th century BC. The Yangtze was embanked in the 1st century BC. Babylon (present-day Iraq) followed not long after, and was succeeded by the Nile and the Po in Italy. In the US, when settlements came up along the Mississippi in the 18th century, engineers built embankments to protect them.

In India, embankments were constructed for the first time in the 12th century along the Kosi, a turbulent and wayward river in Bihar, the remains of which are still visible. As Mishra argues: "In India, historically, floods and their control have never been a big issue in the Ganga-Brahmaputra basin, as it is today." People built a raised mound near their villages where they could seek refuge during an emergency. "The basic

principle was to spread water over as large an area as possible so that the agricultural fields get water, the silt gets spread over a large area to give soil its natural nutrients, and reduce the flood levels by moderating floods due to their spreading in the countryside."

There were also varieties of paddy which grew in the rising waters. I recall visiting the activist Sanjoy Ghosh in Majuli, near Guwahati, in the midst of the Brahmaputra -- the world's biggest river island, where he was tragically killed by ULFA -- where he showed me a type of rice that didn't even need to be boiled: simply soaking the grain was enough to make it edible. If nature could adapt to floods in this manner, it was perhaps not quite the "disaster" it is made out to be.

According to Mishra, floods became a major issue after the British occupied India. They studied the canals built by Feroze Shah Tughlaq in the 14th century. When they examined the Ganga basin, they believed that if it could be made "flood-free", they could levy a tax in return for such protection. Later, the areas rendered free would need to be irrigated during the summer and the canals would yield the Raj still more revenue. They tried embanking the Damodar from the 1850s, but this proved unsuccessful due to huge breaches. It led to them calling off the Gandak project in 1872. In the succeeding years, they tried to improve the drainage in the Gangetic belt and refrained from spending on relief and rehabilitation.

After Independence, the government was inspired by Pandit Nehru's famous remark, when he opened the Nangal canal to carry water from the Bhakra reservoir in 1954, to the effect that no temple or mosque or gurdwara could be holier than these dams. This has been mythologised into equating irrigation projects with "the temples of today". I challenged this stereotype in a book titled *Temples or Tombs?* (CSE, 1985), questioning whether these projects were symbols of development or, often, symbols of destruction.

Only last year, this issue was revisited with greater documentary evidence by Shripad Dharmadhikary in his *Unravelling Bhakra: Assessing the Temple of Resurgent India* (Manthan Adhyayan Kendra, Badwani). Briefly, he questions how much the Bhakra -- the holiest of holies -- contributed to the increase in foodgrain output, which predated the Green Revolution. Not surprisingly his thesis has been attacked with a vengeance by irrigation engineers, who have a vested interest in promoting such temples -- the mother of them all being the interlinking of rivers.

One of the forgotten dam-builders of independent India was Gulzarilal Nanda who initiated a flood-control programme in 1954 and expected that these monsters would be tamed in the short span of seven years. (Given the euphoria of the times, his

optimism was excusable!) Within two short years, however, he recanted, saying: "We cannot expect for years to come to be in a fortunate position of being absolutely immune from flood risks. We shall have to learn to live with floods to an extent."

Meanwhile, the area prone to flooding has increased from 25 million hectares in the 1960s to 40 million hectares by the turn of the century. In Bihar specifically, this has risen from 2.5 million hectares in 1952 to 4.3 million by 1971, rising to nearly 7 million by 1994. To counter this near-annual deluge, the state has built 3,430 km of embankments, while there were only 160 km in 1952. It does not require much engineering knowledge to realise that such construction is only a temporary measure and, on the contrary, tends to exacerbate the problem because the moment flood levels rise above the embankments they cause worse destruction.

By embanking a river, the natural deposition of life-sustaining silt is thwarted. What's more, the silt remains confined to the riverbed. This is why the bed of the Hwang Ho, which is the earliest river to be thus treated, is now said to be 8 metres higher than the adjacent countryside, in some stretches. The Mississippi bed too has risen by up to 9 metres over the last century. In the Kosi, it has risen by 2 metres in the 30 years since construction began.

In the case of river linking, the engineers' lobby is extremely active. The protracted impasse over the Sardar Sarovar dam partly led to the report of the World Commission on Dams, which pointed to mistakes made throughout the world in imagining that these were the universal solutions to flood control, irrigation and power. In this country, however, there seems to be no such rethinking on the part of the so-called experts. Even the president has thrown his not-inconsiderable weight behind the project. As Mishra told me, though, so long as Bihar is not prepared to share its water resources with other states the project seems stymied from the start.

Ironically, British irrigation engineers often appear more forthright. As long ago as 1937, the chief engineer of Bihar, Captain G F Hall, told a conference on floods that by building embankments "we are storing disaster for the future, though we may not be here ourselves to witness the climax". After Independence, a high-level committee debunked the opinion of Bihar and Bengal engineers against embankments, influenced by the short-sightedness of experts who take a technocratic view on every problem.

Dr K L Rao, who headed the Central Water and Power Commission, visited China as part of an official delegation and recommended embanking the Kosi, despite the experiences of the Hwang Ho. As Mishra observes: "The problem is that often politicians behave like engineers and the engineers return the gesture by assuming the role of politicians. Dr K L Rao did become the Minister of Irrigation and Power at the

Centre." In today's context, one must question the president's authority to opine on something as complex as altering the natural flow of rivers: his knowledge is restricted to rocket science.

The problem is that people everywhere treat floods as a problem, partly because opinion-makers are based in cities and after the experience of a torrential downpour in Mumbai last July, followed by Chennai, Bangalore and elsewhere, it is assumed that floods are a bane. But, since time immemorial, farmers have welcomed floods in north Bihar and the Brahmaputra valley. Traditionally, the wider the impact of a flood, the greater its benefit, since this meant that nature's largesse was distributed over a larger area, enabling two good crops a year.

As Mishra observes, "the skills of the engineers and resources of the state" are a formidable combination. He terms this approach "living with floods" and, as in so many other cases of environmental degradation, this calls for listening to the wisdom of the past. He even makes a case for relying on the indigenous knowledge of communities that have lived on the banks of rivers. It calls for a holistic vision, one that encompasses not only irrigation and agriculture but also fisheries, employment and a host of other development activities.

To what extent such an alternative vision is possible, with the contemporary emphasis on technology-dependent quick-fix solutions, is a moot point. A parallel is the Golden Quadrilateral when it comes to long-distance road transport, where constructing roads is seen as the solution, irrespective of the energy implications. Engineers see their career paths contingent on such massive projects -' the bigger and more expensive (interlinking will account for a quarter of the country's GDP), the better. To adapt P Sainath's memorable title, it is obvious that "everybody loves a good flood" as well.

InfoChange News & Features, January 2006