

## **The clock on the Kosi**

*By: Ramaswamy R Iyer*

Whatever the thinking behind the old Kosi and Gandak agreements between Nepal and India (1954 and 1959), they have left a legacy of resentment and mistrust in Nepal which has persisted despite the amendments of 1966 and 1969. The Mahakali Treaty of 1996, signed after extensive consultations, has remained a dead letter, contributing to a worsening of India-Nepal relations rather than opening a new chapter as had been hoped. The old debate has now been revived by the breach in the Kosi embankment.

The India-Nepal relationship has been badly mismanaged on both sides. Ham-handedness and insensitivity on India's part, and excessive touchiness and readiness to misunderstand on Nepal's part, have created a convoluted and volatile relationship between the two countries, which resists repair. Perhaps the best course would be to wipe the slate clean and start afresh. There is now a new government in Nepal, and a comprehensive review of the old treaties and agreements is in any case inevitable. Why not scrap the lot and explore a new relationship? But in so doing, it might be sensible to avoid excessive intimacy and aim for no more than friendliness, correctness and a reasonable distance.

Leaving aside the urgent humanitarian challenge of relief and rehabilitation, it is also important to address the matter of dams and embankments as instruments of 'flood control'. Given the natural mass wasting of the Himalayan system and the waywardness of the Kosi due to the load of sediment it carries, it was probably a mistake to build a barrage and embankments on that river. Even if the embankment had been properly maintained, it might have given way in an exceptionally heavy flood. That is the nature of embankments: even if they do not break down, they can cause various problems, such as rises in the level of the riverbed and the consequent elevation of the river above the level of the ground on either side; possible attacks by the river further downstream; and of course the emergence of waterlogging and even flooding in the areas 'protected' by the embankments, because water cannot drain from those areas into the river. While it might not be possible to rule out the construction of embankments altogether, they are in general remedies worse than the disease.

Floods are natural phenomena. They will occur from time to time, in varying magnitudes and intensities. When the floodwaters come, the river needs space to spread and accommodate them. The natural floodplain of a river must be considered an integral part of the river. If we build on it, or if we try to contain the river within its embankments, we are asking for trouble.

It might be asked: what is wrong with high dams? A dam will create a reservoir

that will surely provide space for the temporary storage and gradual release of floods, thus moderating them. That seems very plausible, but a dam-and-reservoir project is rarely built exclusively for flood control. It is generally built for multiple purposes (irrigation, power generation, flood control, etc), which means that such projects have in-built conflict. Flood control would require the intended space in the reservoir to be kept empty for accommodating floodwaters, whereas irrigation or power generation would require the reservoir to be as full as possible. And as the latter are gainful activities in an economic sense, they are apt to prevail over flood control in the design and implementation of a project. If the space meant for accommodating floods is not available when the flood comes, the gates will have to be opened in the interest of the safety of the dam, and the downstream area might experience a greater flood than otherwise. Indeed, this has happened more than once.

This is not a counsel of despair. One is not arguing that calamities must be accepted and suffered fatalistically. Consider what we do in the case of earthquakes or hurricanes or tornadoes or tsunamis. Does anyone say that they should be stopped or prevented from happening, or somehow controlled? What everyone would say is that they should be predicted, anticipated, and prepared for; that there should be timely information, a state of preparedness for disaster, the minimisation of damage and prompt and adequate response by way of rescue and relief when the disaster actually strikes. Exactly the same point applies to floods. In addition, we can also learn from well-established traditional coping practices, evolved over centuries by our communities accustomed to periodic floods.

That wisdom is for the future. What do we do about structures already built? If we repair the damage to the embankment and try to put the river back into its old course, we are running the risk of a recurrence of a major disaster in the future. On the other hand, if we do not rebuild the structures but let the river find its natural course, we might be putting at risk a large number of people who are living and pursuing their livelihoods in areas earlier 'protected' by the embankments. That is a difficult choice, but not really a dilemma. The argument that we cannot put the clock back is not valid. Having realised the errors of the past, there is no escape from reversing them over a period of time very carefully, minimising the pain of readjustment to the extent possible. That applies to global warming and climate change, and it applies equally to the fallacy of 'flood control'.

*Ramaswamy R Iyer was secretary of water resources, Government of India.*