

Managing embankments

Life had come to a standstill in the [Ganga-Brahmaputra floodplains](#) where large tracts of land were reeling under floods. Everywhere there were submerged houses, broken bridges, and wasted railway tracks. The fury of the waters in the Kishanganj and Katihar districts of Bihar had cut off the road and rail services in north Bengal, and consequently Northeast India's connectivity by rail with the rest of India. On such occasions, schools routinely turn into relief centres and schoolchildren are forced to take a "flood vacation". Access to water and sanitation is difficult. Open defecation is common, and the use of contaminated water leads to a peak in water-borne diseases. Agricultural land is either covered with sand or remains waterlogged.

Further accentuating the misery is the failure of embankments — the gold standard for flood protection. An embankment is an uplifted earthen structure constructed along the river channel to artificially reduce the size of the floodplains by constricting floodwaters to a narrow stretch. The land outside the embankment is supposed to be safe from floods. However, embankment breach resulting in flooding the "safe" areas is routine. We need a paradigm shift in the way these embankments are managed. It is important to involve the community that is close to the embankment in its management. Only then can we break the build-and-forget mentality that currently rules the bureaucracy.

Bihar floods: when home is a highway

Our study of over 100 villages in the Ganga-Brahmaputra floodplains found that villages in these areas are exposed to diverse water-related hazards depending on their location vis-a-vis an embankment. Those located inside the embankment are vulnerable to floods and riverbank erosion, and those outside, in the "safe" areas, are prone to extended periods of inundation. This takes place when the construction of an embankment causes the drainage lines to be blocked, the regulators in the embankments become dysfunctional, or when there is a backflow of the larger river in spate. The people in these "safe" areas suffer from a perennial fear of embankment breach, which is not entirely unfounded. In Bihar in 2008, there was a colossal embankment breach in the Kosi river basin. This year too, in parts of Assam, Bihar and West Bengal breaches have caused flooding. Only in a few cases have newly constructed embankments been able to protect villages located outside them from floods. Despite this, in flood-prone areas with no embankments, people still articulate the need for embankments.

Till now, embankments have been managed by irrigation or flood-control departments. However, the communities near the embankments are best positioned to take care of them. The responsibility of embankment management could be devolved to the community, while the ownership right resides with the state. But this task of decentralisation will not be easy when society is fractured along the lines of caste, class, and religion. We must remember then that disaster is non-discriminatory and affects all.

To incentivise collective action from the community, the state has to create an enabling institutional environment. The community-based organisations (embankment management committees) should be empowered to earn revenue from the embankments through levying tolls (as most embankments are also used as roads), and undertake plantation activities (and sale of the harvest). In areas where villages exist both inside and outside the embankment, their interests conflict. In such cases, efforts could be made to ensure that the former has a greater share of the revenue. This will dissuade them from causing a breach. While the irrigation or flood-control departments might issue tenders for periodic maintenance activity, the committees could act as a partner to partly implement the same, or act as a monitoring agency. Payment to contractors could be conditioned upon a joint inspection by the irrigation department and the embankment

management committees.

Promoting decentralised management systems is yet to be tested for embankment management, even as participatory irrigation and joint forest management are established practices. But if the past teaches us something, it is that build-and-forget cannot be an option for embankments. If we have to shift from reactive flood protection to year-round flood governance, we must design ways of embankment management in flood-prone areas. Participatory embankment management could be the way forward.

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