

Protecting India's river basins

Inter-state conflicts over sharing of river waters have become endemic in India. Despite decades of effort at resolving them, no solution appears in sight. At the same time, more and more sites for the spiritually significant holy dips have either dried up or been reduced to garbage dumps. This sorry state of India's most haloed rivers is a matter of grave national shame. It is also a symptom of precisely where we have gone wrong in our approach to water management.

At the root of it is the way we have ignored the basics of water science. As children, we all learnt of the water cycle in school. But policy-makers in India have forgotten this lesson. They have overlooked the integral interconnectedness between the health of catchment areas and the rivers they feed. The healthier their catchments, the better will be the state of rivers. The unique medicinal properties of the Ganga can only be preserved if we protect the pristine Himalayan catchments from where it originates.

This is why the residents of New York pay those in the city's watersheds for the eco-system services they provide by protecting catchment areas, keeping the river basin healthy and green. This is what ensures clean water supply to the city. Such examples have multiplied all over the world, including in China, Brazil, Mexico, Costa Rica and Ethiopia. But if we encroach upon, damage, block or pollute the channels through which water flows into rivers, naturally river flows suffer in quantity and quality. The natural morphology of rivers has taken hundreds of thousands years to develop. Large structural changes to river channels can lead to unforeseen and dangerous hydrological, social and ecological consequences. For example, it has been estimated that in the United Kingdom soil erosion has caused a loss to fisheries of as much as 5 million pounds.

My organisation, Samaj Pragati Sahayog, has implemented watershed programmes in central tribal India for the last 30 years. This has taught us the need to view the economy as inextricably interlinked with the

larger eco-system. Not seeing these inter-connections and not building them into our development plans can lead to a serious aggravation of the water problem. A 2018 study of 55 catchment areas, published in the prestigious international journal *Scientific Reports*, shows that there has been a decline in the annual runoff generated by India's major river basins, including Baitarni, Brahmani, Godavari, Krishna, Mahi, Narmada, Sabarmati and Tapi, and this is not due to a fall in rainfall but because of economic activities destructive of their catchment areas. The fear is that if this trend continues, most of these rivers will almost completely dry up.

So how do we reconcile the imperative of economic development with its negative impacts on water availability and river flows? By adopting a completely different approach to development, one where we weave our interventions into the contours of nature, rather than trying to dominate it. Most of India gets its annual rain within intense spells in a short period of 40-50 days. We need to reduce the speed of rain water as it rushes over the ground by carefully regenerating the health of catchment areas, treating each part in a location-specific manner, as per variations in slope, soil, rock and vegetation.

Such watershed management helps recharge groundwater and increase flows into ponds, dams and rivers downstream. And helps us score multiple win-wins: Reduce soil erosion, regenerate forests, raise water tables, rejuvenate rivers, create employment, raise farmer incomes, reduce indebtedness, and gradually eliminate bonded labour and distress migration. The most important success factor is building capacities among the local people so that they can take charge of the watershed programme from planning, design, and implementation, right up to social audit. We must recast MGNREGA on a watershed basis and use its enormous resources for watershed and river rejuvenation, as also for the restoration of traditional water harvesting systems that still exist in so many parts of India, even if in a state of decay and disrepair.



WATER: REFORM OR PERISH

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This regenerative work must be integrated with groundwater-related demand management initiatives, outlined in the previous article in this column. It is groundwater base-flows that keep rivers flowing after the monsoon. So river catchments and aquifers must be always managed together within a river basin protection programme. And for this, the structure of crop incentives has to change so that farmers can shift to less water-intensive choices (as explained in the first article). Urban planners also need to understand that if destructive land use and land encroachment continue in catchment areas, the sustainability and quality of their water sources will be negatively impacted. They should, therefore, like New York, aim to leverage this link to solve their own water problems. They must also recognise that the increased frequency of urban flooding in recent years has much to do with our encroaching upon traditional lakes and destroying the natural channels through which excess water flows into the river or the sea. Again, those responsible for cultural events like the Kumbh Mela must protect the catchments of holy rivers. Otherwise, we will continue to repeat the bizarre spectacle of artificially filling up the holy *kunds* with water drawn from completely external sources!

Fundamentally, what all of this demands, is bottom-up participatory management in every river basin in India. The only solution to the Kaveri conflict, for example, is for stakeholders on either side to come together in a joint exercise to restore the health of their shared river basin, through both catchment area treatment and gradually reducing area under water-intensive crops. Each river basin is a shared resource, whose health will determine the future of people throughout the basin and beyond. Any cavalier short-termism by any state, based on the desire to grab as much water as possible, will be against the enlightened self-interest even of those attempting something so thoughtless.

If our river basins survive, we also will. Otherwise, like many great river valley civilisations of the past, we too will perish!

The writer is co-founder Samaj Pragati Sahayog, working for the last 30 years in tribal heartlands of central India on water and livelihood security. Every fortnight, he outlines multiple dimensions of long overdue reforms in the water sector