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LESSONS AFTER THE GREAT DELUGE

Relevant for: Environment | Topic: Disaster and disaster management

The unique geography of Kerala, with its steep climbdown from 900m high elevations of the Western Ghats to the coast of Malabar, has resulted in a land with a vast riverine network. There are no less than 44 fast flowing rivers that drain the rainwater Kerala is blessed with into the Arabian Sea. It is a lifeline that supports a very fertile land, some of the most singular flora, fauna and also a people and their lives in a symbiotic way.

However, this drainage basin has seen massive urbanisation over the last two decades with the erstwhile wisdom of coexistence with the State's waterways beginning to fade away. This linear development which has been along major road networks, has completely ignored the varying and ecologically sensitive landscape. Substantial portions of revenue lands in the State are wetlands and forests, which has resulted in a shortage of buildable land parcels. This in turn is creating huge pressure on these ecologically fragile areas for conversion to government-supported infrastructure projects as well as private profit-making enterprises.

Not surprisingly, all landslide and flood-affected areas in the State are in Ecologically Sensitive Zones (ESZ-1), as categorised by the Madhav Gadgil report. The Post Disaster Needs Assessment (PDNA) report that was prepared by the UN for Kerala following the massive flooding of 2018 looks at some of the gaps in law and policy. The State Action Plans on Climate Change elucidate measures for disaster-risk reduction in the wake of an increasing frequency of heavy rainfall in turn leading to more flooding and landslides. Though plans and laws such as Integrated Water Resources Management or Coastal Regulation Zone Notification hold key solutions to natural disasters that are linked to water management, most of them are not implemented or followed to the letter. A lack of holistic and coordinated measures within planning departments has resulted in further problems. Also missing are key pieces of legislation for housing and land use in fragile zones which allow buildability but with sensitive development.

The need of the hour is for a review and revision of building bye-laws for urban and rural areas in accordance with bettering environmental sustainability. In 2017, a judgment of the High Court of Kerala mandating the inclusion of a clause in building rules, and which said that 'natural drains and streams shall not be obstructed by this development/building permit', has yet to come into effect. Further, the Kerala Conservation of Paddy Land and Wetland Act, 2008 — it has immense potential to preserve such land as natural watershed buffers — has suffered too many dilutions even as rampant reclamation of paddy lands continues. The absence of a databank on paddy lands and wetlands as mandated by the law, has only exacerbated the issue.

There are, however, cities and regions the world over that deal most successfully with heavier precipitation in much less favourable topography than Kerala's. The dire need is for watershed-based master planning and development legislated guidelines for each major river basin, especially those that impact densely populated settlements. Primarily, such master plans should focus on these areas.

First, there must be a demarcation of ecologically sensitive zones using existing village survey maps and public participation. There must be clear land use plan for these zones specifying flood plains, protected forest areas, agricultural and plantation zones, with details of the types of crops, building usages permitted and the density of buildings permitted.

Second, to compensate owners in non-buildable areas, there must be strategies such as Transfer of Development Rights to buildable zones in cities.

Third, the master plan should focus on permitting only ecologically sensitive building strategies for these areas by proposing new construction techniques. Controlled development can be proposed using building height rules, floor area ratio control, and restrictions on cutting and filling natural land.

Fourth, strategies to make sure that all infrastructure projects are carried out in a scientific manner with strict scrutiny must be specified. This should include roads built on difficult terrain and all public infrastructure projects in wetlands and the High Ranges.

Such an intensive and sensitive hydrology-driven master plan requires very specialised expertise and experience which may not be readily available in our homegrown available pool of resources. The State should not shy away from acquiring the most appropriate skills to implement this urgently given the massive damage to life and property it now faces both in the short and long term. A complete overhaul of processes to hire technical expertise which allows access to necessary skills, and with a long-term vision of capacity building of local agencies, is the way forward.

After the floods in Kerala in 2018, the Chief Minister's team visited the Netherlands to learn how cities with high levels of a water footprint are dealing with climate change issues. Copenhagen in Denmark, which faces a similar problem of repeated flooding, has come up with active cloudburst responsive planning as a process to develop the city in line with climate change needs. Though we cannot just transfer or have carbon copy solutions from Europe, we must learn from each experience in order to collectively formulate strategies that address our needs.

Furthermore, post-disaster management of land and geography needs imaginative actions by the authorities and people in order to reverse the damage already done. The floods in 2018 brought high levels of silt from the highlands, reducing river depths and narrowing river mouths. A year later, this silt has not been cleared, reducing the carrying capacity of rivers. Serious strategies are required by the government and the people to reclaim groundwater percolation and flood plains. Legal processes and bye-laws need revisions. The water footprint needs to be reinstated, and the relationship with water resources rebuilt. This may be the only way we can face a future of changing weather patterns.

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