

ARTICLE (19-25)

UNSHAPING RIVER

Rivers connect ecosystems for biodiversity, society and the cultural transitions undergone over a period of time. Rivers' health may or may not fluctuate with cultural transitions and shifting agricultural practices. With transitions in economic structure, perceptions and use value of the river the health may change for the worse. In a fast paced world with more urbanization and encroachment of riverbanks it is essential we evaluate the present day scenario. The reports by climate vulnerable countries indicate that incidences of flash floods and the vulnerability of communities living in informal settlements caused by straightening of river channels, concretizing surfaces on the river bank, also called riparian zones, are an emerging issue that needs to be addressed. We need to be critical of the causes for the current state and planning of cities, which are evidently not effective or sustainable in the long run. We have been hearing the restoration plans for ages now, it is essential that we start to carve out the historical narrative and past perceptions of the community towards the river ecosystem repair. Negligence of the ecological values of stream ecosystems in the course of urbanization has caused these streams to turn into channels of wastewater flow rather than valuable parts of the urban greenspace providing important ecosystem services.

River channels and streams are being straightened, widened, channelized or piped to fix water flow and encroach banks for construction. The concrete channel provides no ecological or aesthetic value and leads to a narrowed stream which causes flooding in monsoon.



Dumped waste near the river bank.

The concrete structures are environmentally harmful, causingunnatural erosion of the banks and generating pollutant loading downstream. Dumping of waste has led to a complete change in river sediment and river processes. Urbanization, culverting, channelizing and habitat removal have severely reduced the ability of these streams to provide their natural functions: conveyance of water and sediment, purification of air and water, nutrient cycling, and habitat for native wildlife.

Riparian habitats are important for ecological balance and diversity. These natural habitats benefit humans by providing opportunities for recreation and aesthetics, respite from the stresses of urban life. River ecosystem health depends on habitat linkages by a network of natural ecological corridors. Urbanization leads to loss of habitat, ecological corridors and watershed connectivity.

Urban landscape designers should explicitly define the functions of these river channels and connected streams, its banks and corridors, buffer zones should be pre-established before any project near streams and rivulets. The restoration of urban streams cannot return the streams back to their natural status, but it should ensure the recovery of the basic functions of the ecosystem and provide an acceptable compromise between the ecosystem and local human communities; heavily modified streams have negative effects on local inhabitant fauna. Differently evolving societies and rivers have been studied over multiple time frames, as rivers have played a key role in history for establishment of civilizations. The establishment of civilizations along the river for sustenance and utilizing water resources for agriculture, households and transportation.



Dam and check dam constructed over river

The ancient civilizations like Indus, cities from Mauryan empire and so on have proven how access to resources has aided in shaping technological and agricultural strengths of a civilization. The drivers of change associated with water efficiency in both physical and economic terms and the opportunities and constraints need to be addressed. In moving towards a more materialistic society, humans have deemed themselves superior to nature as they can control and command these resources. River systems are believed to be ever changing and we need to understand what are potential drivers that would be affecting its resilience. Rivers are not mere conduits of water supply. The state of rivers driven by multiple stressors such as sewage and solid waste is pitiable and to propose restoration strategies it is essential to map nature of the past and present its shifts in health.

This reportive piece sets out to discuss and highlight the concerns towards freshwater systems specially rivers, which are our lifeline. The river systems are facing a myriad of challenges such as untreated sewage, water siphoning and agricultural runoff; highly regulated through dams and its system of canals and tanks for irrigation and domestic water supply. The current condition and the changing relationship of rivers and society must be at the crux of designing pollution abatement strategies, restoration plans. The work on freshwater conservation has to incorporate the changing stressors and responses from the river in the present scenario and need a comparison with past information to understand the current needs of the river and the communities that reside along it, we must work towards finding how our river systems have ended up in a dwindling state. Changes in river use and perceptions if mapped and disseminated to people will help gauge the attention of society towards the pressing matter.

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