



YAMUNA: THE RIVER GASPING FOR LIFE

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The evolution of mankind from hunter-gatherer societies to settled agricultural lives has consistently been linked to the presence of rivers, serving as the elementary mechanism for the emergence of human settlements. One such river is Yamuna or Jamna, which has been the 'cradle of civilizations' for centuries. The once-mighty Yamuna, which saw the rise and expansion of historic cities like Mathura, Baghpat, Delhi, Agra, Firozabad and Etawah, now lies gasping for life. Ironically, the lifeline of millions, Yamuna, also the twin sister of Yama, the god of death, now lies on the deathbed. The story of this 1,376 kilometer river mirrors humanity's profound negligence and ignorance towards the environment. As we stand at this critical crossroad, the transformation of the Yamuna from a life-giving force and a healer to an impending environmental catastrophe demands our immediate attention and action.

Originating from the Yamunotri Glaciers, the Yamuna transverses through some of the most crowded urban and peri-urban regions of India before merging with the Ganges at Prayagraj. Although the river enjoys a venerated status

and is regarded as a sacred apotheosis of divine purity, this hasn't prevented the people from throwing garbage, dumping sewage and disposing of construction and demolition debris into it, so much so that today many sections of the river are being either overrun by excess plant growth or construction-demolition materials. The ecological deterioration is significantly observable in National Capital Territory, where many sections of the river have been considered ecologically dead. The pollutant analysis of the waters along this 52 kilometer stretch reveals the existence of carcinogens, high levels of carbon compounds, potassium, nitrates, detergents, grease, heavy metals along with other organic and inorganic wastes. Further, the Biological Oxygen Demand (BOD) is alarmingly high, while the Dissolved Oxygen (DO) Levels have declined to zero. Under such circumstances no marine life can survive, neither is the water fit for bathing, drinking or agricultural purposes. The river, which once symbolized life and sustenance, now stands as a symbol of our incapacity to coexist in harmony with the natural world.

Despite decades of governmental programmes and efforts dedicated towards the cleaning and revitalization of the river, be it the “Yamuna Action Plan” or “Yamuna Purification Drive” or “I love Yamuna Campaign”, none of them have produced any meaningful results. Even the interventions by the courts of the country have failed to yield significant outcomes. In fact, over the years, the river has become more polluted and has witnessed a decline, both in its width as well as the size of its floodplains. Furthermore, its surface remains substantially covered with toxic foam and harmful algae bloom. While the effectiveness of the existing laws and policies remain uncertain; the reduced water flow in the river is a key factor propelling its continuous degradation. Thus, no cleaning projects are likely to achieve its objectives unless the floodplains are freed of encroachments and a significant percentage of water available at Hathni - Kund Barrage is released into the river from time to time for ensuring the ecological flows.

Furthermore, since a substantial portion of the pollutants comprise domestic and industrial waste, a combination of biological solutions along with traditional ones should be promoted for sustainable river restoration. For this purpose, bioremediation emerges as a promising intervention for mitigating such contamination, offering friendly ecological solutions. The use of microorganisms demonstrates significant potential in the reduction of pollution in the Yamuna River. Phycoremediation through Cyanobacteria (Blue-Green Algae), Scenedesmus, Klebsormidium, Nephrocytium, Oocystis, Monoraphidium, Chlorococcum, filamentous alga Hydrodictyon reticulatum etc. can play a critical role in the remediation process.

A number of verdicts given by the honorable courts of India and the National Green Tribunal have highlighted that illegal and excessive sand mining along the river has indeed become a significant environmental challenge. Over decades, the plundering of the sand by both legal miners operating under the disguise of leases as well as illegal sand mafias have

exploited the river's floodplains to satisfy the growing demands of the construction industry.

The excessive extraction of sand is unsustainable not only for the flow of the river but also severely disrupts the river's natural balance, triggering a domino effect in terms of ecological consequences. No doubt, sand is a crucial resource for the construction industry, but its unregulated extraction comes with severe consequences for the river ecosystems and surrounding communities. Additionally, the large-scale destruction of the riverbanks has made these areas vulnerable to large-scale encroachment, further compromising the river's fragile ecology. Hence, It is crucial that authorities and local governments take stricter actions to control sand mining and encourage the use of sustainable alternatives. Moreover, enhanced monitoring and enforcement measures are needed to ensure that the environment and local ecosystems are not sacrificed for short-term economic gains.

Lastly, history and culture have always aided in developing consciousness amongst the people, and in Indian society, rivers possess the highest regard. However, in the run up to modernity, we have forgotten to be grateful towards our rivers, and this is why Yamuna (Mata) has become a stream of discolored, stinky waters. Thus, reconciling the connection with the ‘sacred’ river, facilitated by historical, cultural, and ecological perspectives, through initiatives like “Nadi Utsav”, plays a cardinal role in creating awareness and sensitizing people not only about their ecology and environment but also their culture.

It's an reality that no river pollutes itself, it is we who pollute it. The Yamuna is an example of this – a sacred river now lying on the ventilator. The plight of the Yamuna River is a sobering reminder of our collective responsibility toward environmental conservation. The revival of the Yamuna is not just about restoring a river, it's about preserving our heritage, biodiversity, and future. Only through conscious efforts and sustainable practices can we bring the Yamuna back to life or else it will be we who would also be on the ventilator!