

WATER ETHICS, CULTURAL VALUES, AND COMMUNITY-BASED LAKE REJUVENATION: A CASE STUDY OF VELLALUR LAKE, COIMBATORE, INDIA

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Abstract

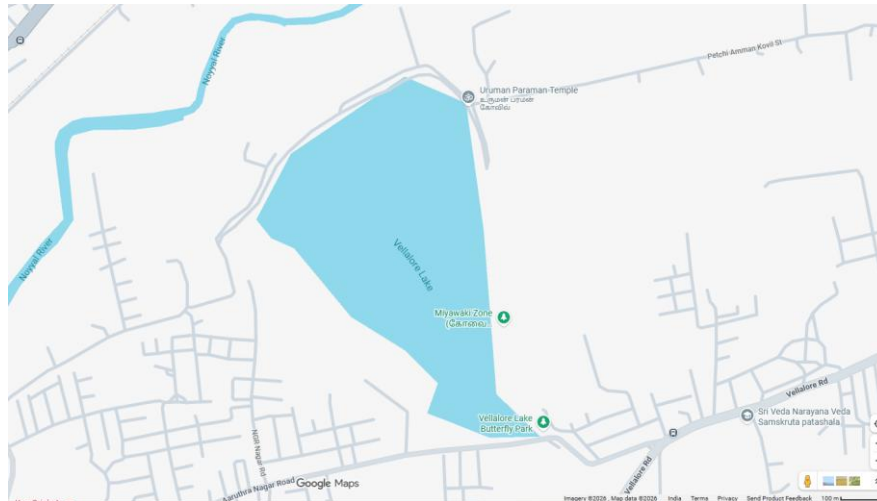
Urban lakes are important for maintaining environmental balance, supporting biodiversity, and improving the quality of life in cities. However, many lakes in Indian cities have deteriorated due to rapid urbanization, pollution, and encroachments. This study examines the rejuvenation of Vellalur Lake in Coimbatore, Tamil Nadu, and highlights the role of cultural values, water ethics, and community participation in restoring a degraded urban water body. The study is based on field observations, interviews with members of a local Non-Governmental Organization (NGO) and residents, and information collected from documentary sources. Vellalur Lake, which covers about 89 acres, remained dry for nearly twelve years because of blocked water channels, dumping of waste, and human encroachments. Restoration efforts were initiated by a local NGO with the support of government authorities and community volunteers. Cleaning drives, removal of solid waste, reopening of feeder channels, and relocation of encroached settlements helped restore the lake's hydrological connection. In addition, large-scale tree plantation and continuous maintenance activities were carried out around the lake. Following these efforts, the lake regained water and ecological conditions improved significantly. The area now supports a variety of bird species, butterflies, and other organisms. The case of Vellalur Lake shows that community involvement and traditional values related to water conservation can play an important role in restoring urban ecosystems. The experience also offers useful lessons for sustainable lake management in other urban areas.

KEYWORDS: Lake restoration, water conservation, community participation, urban ecology, Vellalur Lake, Coimbatore.

INTRODUCTION

Water is fundamental to all living organisms. However, increasing human exploitation and pollution have severely threatened freshwater resources. Sustainable development requires that water be shared equitably among all living beings, not merely for human consumption. Traditional Tamil literature and cultural philosophy emphasize this ethical responsibility.

The *Sirupanja Mullam* story highlights that individuals who contribute to agriculture, water creation, tree planting, and cleaning water bodies attain spiritual merit (Ramasamy, 2012). Similarly, Bharathiyar emphasized the equality of all living beings. These values underline the importance of environmental stewardship (Bharathiyar, 2008). Despite economic growth and job-oriented development, occupations related to environmental protection remain undervalued. In contrast, environmentally destructive activities such as mining generate severe pollution, health hazards, and ecological degradation, affecting both present and future generations.



Location of Vellalur Lake in Coimbatore district. Source: Google maps

Research Objectives

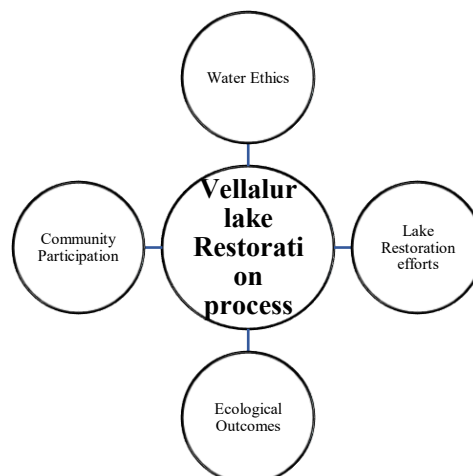
The present study examines the rejuvenation of Vellalur Lake in Coimbatore with particular attention to the role of water ethics, cultural values, and community participation in restoring an urban water body. The study aims to document the ecological, social, and institutional processes involved in the restoration initiative. Specifically, it seeks to examine the historical and cultural significance of Vellalur Lake and its role in the traditional water management system of the region. It also analyses the factors that contributed to the degradation of the lake prior to its rejuvenation, including encroachments, waste dumping, and blockage of feeder channels. Furthermore, the study investigates the role of non-governmental organizations, community participation, and government support in the restoration process. In addition, it assesses the ecological and social outcomes of the rejuvenation efforts, such as biodiversity recovery and improvements in environmental conditions. Finally, the study aims to identify lessons from the Vellalur Lake restoration that can contribute to the sustainable management and conservation of urban water bodies in other regions.

METHODOLOGY

This study adopts a qualitative case study approach to understand the processes and outcomes associated with the rejuvenation of Vellalur Lake in Coimbatore, Tamil Nadu. The research relies primarily on field-based qualitative data supported by documentary sources.

Primary data were collected through field visits, direct observations, and semi-structured interviews conducted with members of the non-governmental organization involved in the restoration work, local volunteers, and residents living near the lake. These interviews provided insights into the history of the lake, the challenges faced during restoration, and the role of community participation. Secondary information was obtained from news reports, organizational records, online databases, and published literature related to water conservation, lake restoration, and the traditional tank system of Tamil Nadu. Additional information regarding biodiversity, afforestation activities, and restoration progress was gathered from NGO documentation and field records. The collected data were analysed using a descriptive and interpretative approach, focusing on the social, ecological, and institutional dimensions of the lake rejuvenation process.

CONCEPTUAL FRAMEWORK



The conceptual framework illustrates the relationship between cultural values and environmental outcomes in the rejuvenation of Vellalur Lake. Traditional water ethics and cultural values encourage environmental stewardship and collective responsibility toward natural resources. These values promote community participation through volunteer engagement, NGO initiatives, and awareness campaigns. Community participation then leads to practical lake restoration efforts such as waste removal, clearing of feeder channels, afforestation, and relocation of encroachments. These restoration activities ultimately result in positive ecological outcomes, including biodiversity recovery, improved water quality, habitat restoration, and enhanced environmental sustainability.

Traditional Water Governance and Social Justice

Historical inscriptions at the Perur Patteeswaram Temple emphasize equitable water distribution. According to these inscriptions, downstream communities must receive water before upstream users. This principle prevented water monopolization and ensured social justice. Even today, similar water-sharing disputes are addressed in the Supreme Court of India.

Such traditional governance systems reflect advanced hydrological management and ethical responsibility in pre-modern Tamil society (Bhale, 2021).

Historical and Cultural Significance of Vellalur

Vellalur is an ancient settlement and a prominent trading hub located along Rajakesari Peruvazhi, an old trade route (Kirubakaran, 2025). The region houses the Theneeswarar Temple, dedicated to Lord Shiva, which uniquely contains a sculpted idol instead of a traditional lingam.

Local legends mentioned Oruman and Paraman, who sacrificed their lives for the protection of Vellalur Lake (Volunteer, 2025). The region also contains several archaeological remains, highlighting its historical importance.

Status of Vellalur Lake Prior to Rejuvenation

Vellalur Lake covers approximately 89 acres. For nearly 12 years, the lake remained dry. Due to neglect, encroachment, and blockage of feeder channels, it gradually transformed into a thorn forest (Selvam, 2018).

Many local residents were unaware of the lake's existence. The lake's inlet from the Noyyal River check dam was obstructed due to dense residential settlements. Authorities avoided releasing water because of the risk of landslides and flooding (Network, 2023).

Consequently, the lake area became a dumping site for solid waste and sewage, producing foul odors and severe health hazards . Sanitation workers were initially unwilling to work in the area due to extreme contamination (Amaippu, n.d.).

Role of NGOs in Lake Restoration

A local NGO conducted field investigations and identified that Vellalur Lake functioned as a check dam within the Noyyal River system. Blocked gates prevented water inflow.

The NGO initiated a multi-dimensional intervention strategy:

- Removal of plastic waste and solid debris
- Community awareness campaigns
- Social media advocacy
- Collaboration with government agencies
- Mobilization of volunteers (Sangeetha, 2019)



After restoration of Vellalur Lake. Source: (Amaippu, n.d.)

Despite difficult working conditions, volunteers cleaned the area manually. During the cleaning process, unstable waste deposits caused localized landslides. Health surveys revealed high disease prevalence among nearby children (Anon., n.d.). The NGO engaged in dialogue with affected communities, many of whom lacked adequate housing. With their consent, the NGO facilitated relocation. Approximately 2,000 families were resettled in Tamil Nadu Housing Board colonies with government support. Subsequently, encroached structures were demolished, and the lake's hydrological connectivity was restored. As a result, after 12 years, the lake regained water (Member, 2025).

Ecological Restoration and Green Cover Development

After water restoration, the NGO prioritized ecological rehabilitation. Recognizing the link between vegetation and rainfall, they initiated large-scale afforestation.

Activities included:

- Weekly lake-cleaning drives (over 405 weeks in 8 years)
- Plantation of saplings (initial height: ~1.5 inches)
- Maintenance and monitoring
- Community participation

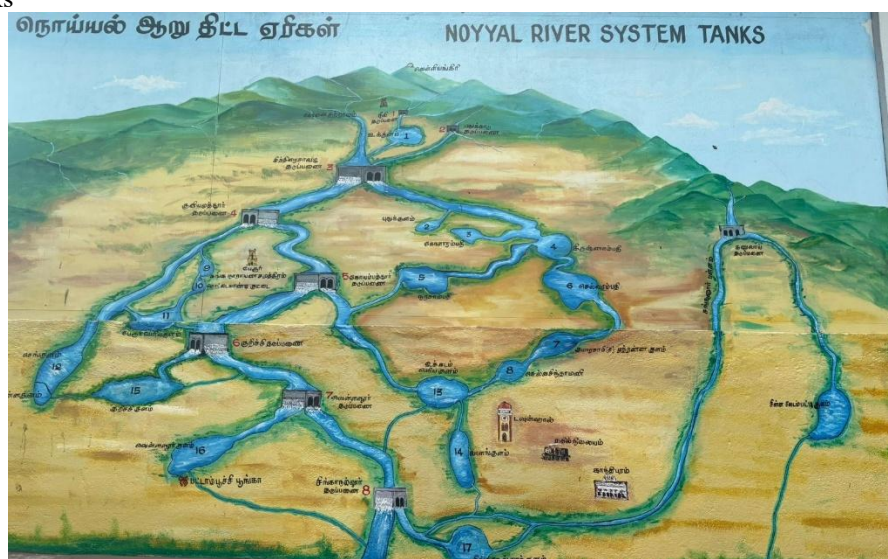
Currently, many planted trees have reached 40–50 feet in height. Over 50,000 trees have been planted and maintained. Support was received from IT professionals, college students, and local residents, reflecting strong community engagement (Member, 2025) (Amaippu, n.d.).

Noyyal River System and Traditional Tank Networks

The Noyyal River originates in the Western Ghats and flows for approximately 160 km before joining the Cauvery River. It is primarily rain-fed and seasonal.

During the Chola period, (India, 2018) water management structures were highly advanced. Excessive water flow previously caused flooding in the Cauvery delta. To regulate discharge, rulers constructed:

- 32 check dams
- Interlinked lakes
- System tanks



Interconnected lake and check dam system of the Noyyal River basin. Source: (Documentation, 2025)

Water was stored in crescent-shaped ponds and distributed using gravity-based mechanisms. Around 1,200 non-system tanks existed in the Coimbatore region. This interconnected tank system ensured flood control, groundwater recharge, and drought resilience.

Urban Development and Water Infrastructure

During the British period, Coimbatore emerged as a major textile and machinery hub due to favourable climate and water availability. After independence, industrial pollution degraded water bodies, rendering some areas unsuitable for habitation. Citizens initiated restoration movements with government support (Anon., n.d.).

One major intervention was the construction of underground water tunnels connecting Vellingiri Hills to Ukkadam (Gautham, 2017). Workers faced extreme risks including wildlife attacks, vector-borne diseases, and floods. Several workers lost their lives during construction.

The completion of these tunnels significantly improved urban water supply. Siruvani, originating in the Bhavani catchment, became the primary drinking water source.

Western Ghats and Climate Regulation

The Western Ghats stretch from Kanyakumari to Gujarat and play a vital role in regional hydrology. Grasslands and forests store rainwater and regulate temperature.

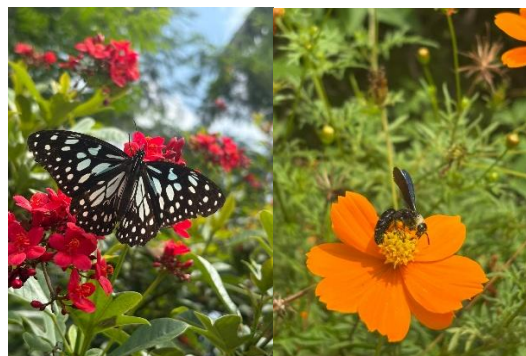
Currently, grassland degradation has reduced water retention capacity, increased surface runoff, and raised regional temperatures. Conservation of mountains, forests, and wildlife is therefore critical for long-term water security.

Biodiversity Recovery

Post-restoration, Vellalur witnessed significant biodiversity revival (Service, 2024) (Amaippu, n.d.). The butterfly park and surrounding habitats now support:

- 160 bird species
- 106 butterfly species

- Native bees and insects (Anon., n.d.)



Biodiversity observed around the Vellalur Lake butterfly park area. Source: (Anon., 2024), Data on Butterfly Park, Native bees and insects field surveys and NGO records (Documentation, 2025)

This ecological recovery indicates improved environmental quality and habitat stability.

DISCUSSION

The rejuvenation of Vellalur Lake illustrates how environmental restoration can emerge from the interaction of cultural values, community participation, and institutional collaboration. The case demonstrates that traditional ecological ethics embedded in Tamil cultural narratives continue to influence contemporary environmental action. The emphasis on protecting water bodies, planting trees, and maintaining ecological balance reflects long-standing moral values that recognize the interconnectedness of humans and nature.

The restoration initiative also highlights the importance of community-driven environmental governance. The active involvement of volunteers, local residents, and civil society organizations enabled sustained cleaning efforts, awareness campaigns, and afforestation activities. Such participatory approaches often prove more effective than purely government-led interventions because they generate local ownership and long-term commitment to conservation.

From an ecological perspective, the restoration of hydrological connectivity and vegetation cover played a crucial role in improving environmental conditions around the lake. The planting of thousands of trees contributed to habitat formation, microclimate regulation, and biodiversity recovery. The return of bird species, butterflies, and other organisms indicates the gradual stabilization of the ecosystem.

The case also underscores the continued relevance of traditional tank systems in contemporary water management. Historically, interconnected tanks and check dams were designed to regulate water flow, prevent flooding, and recharge groundwater. Reviving such systems can provide sustainable solutions to urban water challenges, particularly in semi-arid regions where water scarcity is common.

Overall, the Vellalur experience suggests that successful urban lake restoration requires a combination of ecological restoration measures, community participation, cultural awareness, and institutional cooperation.

Conclusion

The study examined the rejuvenation of Vellalur Lake in Coimbatore and highlighted the significance of water ethics, cultural values, and community participation in restoring a degraded urban water body. The lake, which had remained dry for several years due to encroachments, waste dumping, and blocked feeder channels, was successfully revived through the collaborative efforts of a local NGO, government agencies, and community volunteers. The restoration process involved the removal of solid waste, reopening of hydrological connections, relocation of encroached settlements, and large-scale afforestation activities. These interventions contributed to significant ecological improvements, including increased vegetation cover and the return of diverse bird and butterfly species. The case also demonstrates that traditional knowledge systems and historical water governance practices can provide valuable insights for modern environmental management. The experience of Vellalur Lake highlights the importance of participatory approaches to urban water conservation. Community involvement, supported by institutional cooperation, can play a vital role in restoring and sustaining urban ecosystems. The lessons from this case study may serve as a useful model for the rejuvenation and management of other degraded lakes in rapidly urbanizing regions.

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Availability of data and materials

The datasets generated and analysed during the current study are not publicly available due to ethical restrictions mandated by our institution's ethics committee.

Declaration of competing interest

The authors have no relevant financial or non-financial interests to disclose