

Project Report: Nanganji River System Restoration Initiative

By: BALA TRUST

1. Executive Summary

The **Nanganji River**, a critical tributary of the Amaravathi River in Tamil Nadu, is experiencing severe ecological and hydrological stress. This project aims to **restore the Nanganji River System** to ensure climate resilience, sustainable water management, improved biodiversity, and rural livelihood security. The initiative adopts an integrated river basin restoration approach grounded in scientific methodology, community participation, and technology-led monitoring.

2. Project Title

"Nanganji Nadi Punarjeevanam: A Climate-Resilient River Revival Model"

3. Problem Statement

Over the past two decades, the Nanganji River has undergone:

- Disruption of natural flow due to unregulated sand mining and damming.
- Shrinkage of wetlands and feeder tanks.
- Contamination from untreated wastewater and agricultural runoff.
- Encroachment of the floodplains and riparian zones.
- Groundwater table decline affecting drinking water and agriculture.

These stressors have worsened under the influence of climate change, including irregular monsoons, extreme heat, and prolonged droughts.

4. Project Objectives

- Restore **70–90 km** of the Nanganji River and its feeder streams.
- Reconnect **tanks, ponds, and canals** to the river system for improved recharge.
- Afforest **riparian buffer zones** using native plant species.
- Enhance **community participation** in water stewardship.

- Strengthen the **resilience of agriculture and biodiversity** through river health.
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5. Geographic Focus

Project Area:

- **Karur District**, Tamil Nadu (Pallapatti, Velliyanai, K. Paramathi, and nearby blocks).

River Features:

- Connects several seasonal streams and over 80 traditional irrigation tanks.
 - Highly dependent on monsoon rainfall and groundwater interaction.
 - Major livelihood source for smallholder farmers and weavers.
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6. Methodology

Phase 1 – Baseline Assessment:

- Conduct **hydrological and ecological surveys**.
- Map **encroachments, pollution points, and wetland connections**.
- Collect **socio-economic data** from farmers and local communities.

Phase 2 – Restoration Works:

- Desilting of riverbeds and feeder canals.
- Construction of **check dams, percolation pits, and bio-fencing**.
- Reconnection of isolated irrigation tanks.
- Riparian restoration through **native species plantations**.

Phase 3 – Community & Capacity Building:

- Formation of **Village Water Councils (VWCs)**.
- Farmer training on **climate-smart agriculture** and **organic practices**.
- River literacy campaigns in schools and public spaces.

Phase 4 – Monitoring & Innovation:

- Real-time water monitoring with **IoT-based flow meters**.
 - Drone mapping of progress every 6 months.
 - Use of open-source platforms to display impact metrics.
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7. Stakeholders & Collaborators

- **Government Agencies:** Water Resources Department, TNPCB, District Rural Development Agency
 - **Research Partners:** National Institute of Hydrology, TNAU
 - **NGOs & SHGs:** Local women's groups, water user associations
 - **CSR Contributors:** Textile and dyeing industries in Karur
 - **International Advisors:** UNDP, IUCN, World Resources Institute
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8. Budget Plan

Estimated Cost (5-Year Plan):

| Component | Estimated Cost (INR) |
|---|----------------------|
| Baseline Studies & GIS Mapping | ₹1.0 Crore |
| River & Tank Restoration Infrastructure | ₹7.5 Crore |
| Afforestation & Bioengineering | ₹2.0 Crore |
| Community Engagement & Training | ₹2.0 Crore |
| Monitoring Systems & Evaluation | ₹1.5 Crore |
| Admin, Overheads, and Risk Buffer | ₹1.0 Crore |
| Total Project Cost | ₹15 Crore |

Funding Model:

- CSR (local industries and national donors)
 - Government schemes (MNREGS, Atal Bhujal Yojana)
 - Green climate funds and environmental grants
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9. Impact Metrics

- **90 km** of river rejuvenated
- **150+ tanks and ponds** reconnected
- **12–15 million liters/day** water recharge capacity restored
- **5,000+ acres** of farmland revived with sustainable irrigation
- **100,000 native trees** planted across 3 years
- Improved river health index (from Class D to Class B)
- **20,000+ residents** directly impacted across 40+ villages

10. Risk Analysis & Mitigation

| Risk | Mitigation Strategy |
|-------------------------|---|
| Monsoon failure | Develop dryland recharge and storage systems |
| Encroachment resistance | Transparent legal survey and community dialog |
| Low local participation | Incentives and local employment integration |
| Maintenance lapse | Establish community-led maintenance model |

11. Sustainability Strategy

- Establish **Nanganji River Trust** (community + experts) for post-project management.
 - Annual **river health audits** with open data access.
 - Incorporation into **school curricula** and skill training programs.
 - Certification of organic farming and **green product branding** for local crops.
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12. Timeline

| Stage | Duration |
|-----------------------------------|---------------|
| Baseline and Planning | Month 1 – 4 |
| Infrastructure & Restoration | Month 5 – 24 |
| Plantation & Afforestation | Month 6 – 36 |
| Monitoring and Reporting | Month 12 – 60 |
| Knowledge Dissemination & Scaling | Year 4 – 5 |

13. Conclusion

The **Nanganji River System Restoration Initiative** is not only an environmental necessity but a strategic climate resilience project. By reviving this vital tributary, the initiative strengthens regional water security, supports agricultural sustainability, and empowers communities with climate adaptation skills. This model is scalable across Tamil Nadu and can inspire similar river restoration projects nationwide.