

Kalmadu Tank Rehabilitation

A Success Story of Community Engagement, Livelihood Protection and Improved Water Security

Integrated Watersheds and Water Resources Management Project (IWWRMP)

Summary

The rehabilitation of the Kalmadu Tank under the Integrated Watersheds and Water Resources Management Project (IWWRMP) demonstrates how investment in irrigation infrastructure, combined with strong community engagement and social safeguard measures, can contribute to improved water security and protection of rural livelihoods.

The Kalmadu irrigation scheme is a major irrigation system in the Northern Province, serving agricultural communities in the Kandawalai area of Kilinochchi District. The scheme has a command area of approximately 3,450 acres and plays an important role not only in agricultural production but also in supporting groundwater recharge and the availability of water for domestic use, livestock, schools, health facilities and religious institutions.

Before rehabilitation, the tank bund and associated infrastructure had deteriorated due to prolonged inadequate maintenance, previous damage and severe flooding. The project therefore focused on rehabilitating and strengthening the tank bund, sluice, spillway, toe road and culverts to improve the safety and performance of the irrigation system.

The rehabilitation process also created temporary challenges for communities dependent on the tank. Reduced water availability during construction affected farmers' ability to cultivate during the Yala season and raised concerns regarding drinking-water availability. Through continuous engagement with Farmer Organizations, the Grievance Redress Committee (GRC), the Project Management Unit (PMU), the Northern Provincial Irrigation Department and local authorities, these concerns were identified and addressed.

Alternative agricultural land was arranged for affected Kalmadu farmers under the Iranamadu Tank system, while temporary drinking-water arrangements were established for communities experiencing water shortages. These measures helped minimize livelihood impacts and demonstrated the importance of integrating social safeguards and community participation into infrastructure development.

Overall, the Kalmadu Tank Rehabilitation experience demonstrates that successful irrigation infrastructure development requires not only engineering solutions but also effective community consultation, responsive grievance management and timely livelihood support.

1. Situation Before the Project

The Kalmadu irrigation scheme is located in an area where agriculture is a major source of livelihood. The tank and its associated irrigation system support farming communities across the surrounding areas and contribute to the recharge of groundwater resources.

However, over time, the Kalmadu Tank infrastructure had become significantly deteriorated. A section of the tank bund and the Right Bank sluice had previously been breached, while inadequate operation and maintenance and damage caused by heavy flooding further affected the condition of the irrigation system.

The deteriorated condition of the tank bund created concerns regarding the safety and reliability of the irrigation scheme. The project also identified the potential to improve water storage and irrigation services to support the cultivation of currently underdeveloped agricultural lands in the Dharmapuram and Puliypokkanai areas.

Major Issues Identified Prior to Rehabilitation

Problem Identified	Potential Impact
Deteriorated tank bund	Risk to tank safety and water storage
Damaged irrigation structures	Reduced efficiency of water regulation and distribution
Inadequate maintenance	Further deterioration of irrigation infrastructure
Flood damage	Increased vulnerability of the tank system
Limited water availability	Reduced agricultural production
Dependence on tank water	Vulnerability of farming and other community livelihoods
Potential groundwater impacts during rehabilitation	Risk to domestic water availability

These conditions highlighted the need for comprehensive rehabilitation of the tank infrastructure while ensuring that the livelihoods and well-being of dependent communities were protected during construction.

2. Project Intervention

To address these challenges, IWWRMP implemented a rehabilitation programme focused on strengthening the Kalmadu irrigation system and improving its long-term safety and functionality.

The principal interventions included:

- Rehabilitation and strengthening of the tank bund
- Rehabilitation of the sluice structures
- Rehabilitation of the spillway
- Construction and improvement of the toe road
- Improvement of culverts under the tank headworks
- Improvement of water storage and irrigation management
- Environmental and social safeguard monitoring
- Establishment and strengthening of the Grievance Redress Committee (GRC)
- Regular consultations with affected communities and Farmer Organizations
- Identification and management of livelihood impacts
- Provision of alternative agricultural land for affected farmers
- Development of mitigation measures for drinking-water shortages

A key feature of the intervention was the active involvement of the community throughout the rehabilitation process. The PMU conducted repeated field visits and community meetings and worked closely with Farmer Organizations, GRC members, the Divisional Secretariat and relevant irrigation authorities.

The GRC provided an important platform for communities to raise concerns and communicate directly with project authorities. Through this mechanism, issues related to livelihoods, construction activities and drinking-water availability were identified and addressed.

3. Community Engagement and Grievance Redress

The formation of the GRC was an important step in ensuring that local communities were actively involved in the rehabilitation process.

The PMU conducted several visits to the Kalmadu rehabilitation site and surrounding beneficiary villages. More than ten community meetings were held, allowing community members and Farmer Organization representatives to discuss project activities, potential impacts and future livelihood opportunities.

The GRC received and facilitated the management of grievances related to livelihood support, construction activities and other project-related matters. This process helped create a direct communication channel between the community and project implementation agencies.

The active participation of community representatives helped the project identify emerging issues early and develop practical solutions in consultation with affected communities.

4. Protection of Farmers' Livelihoods During Construction

One of the major challenges during rehabilitation was the temporary reduction in water availability in the Kalmadu Tank. Since farmers depended on the tank for Maha and Yala cultivation, the construction programme created concerns regarding the loss of agricultural income.

The Farmer Organizations communicated these concerns to the PMU and relevant authorities. Following discussions, farmers agreed to temporarily forgo Yala cultivation in 2023 to facilitate completion of the rehabilitation works.

Recognizing the potential livelihood impact, the PMU and relevant irrigation authorities worked together to identify an alternative solution. Approximately 500 acres of alternative agricultural land under the Iranamadu Tank system were arranged for Kalmadu farmers.

This intervention helped reduce the adverse livelihood impacts of the temporary loss of irrigation water and allowed affected farmers to continue agricultural activities while the rehabilitation work progressed.

The experience demonstrates how early consultation, transparent communication and coordinated action can help infrastructure projects manage unavoidable temporary impacts on communities.

5. Addressing Drinking-Water Challenges

The Kalmadu Tank is important not only for irrigation but also for groundwater recharge. The tank and its associated minor tanks contribute to the availability of groundwater used for drinking, domestic activities, livestock and other community needs.

During the rehabilitation period, community members raised concerns regarding declining groundwater availability and requested support for drinking-water supplies.



Figure 1- Water pumping from wells to bowser; these facilities provided by Contractor

The issue was formally communicated through the GRC and brought to the attention of the relevant authorities. The PMU coordinated with the Northern Provincial Irrigation Department, the Kandawalai Divisional Secretariat and the contractor to develop mitigation measures.

As an immediate response:

- Water supply arrangements were made for identified locations experiencing shortages.
- Water tanks were placed at several common public locations.
- The Kandawalai Divisional Secretariat supported the provision of water tanks and water-bowser facilities.
- The contractor provided a tractor, driver and helper to transport water to community water tanks.
- Drinking water was supplied to affected areas until the rainy season improved local water availability.

These measures provided temporary relief to communities affected by water shortages and demonstrated the project's commitment to responding to community concerns during implementation.



Figure 2. Water tank provided by Kandawalai D.S. Office A water tank was kept 10 common public places



Figure 3- The contractor (RR Construction (Pvt) Ltd

6. Results and Community Benefits

The Kalmadu Tank Rehabilitation has strengthened the physical infrastructure supporting the irrigation scheme while also demonstrating the value of community-centred project implementation.

Key Results

Area	Result / Benefit
Irrigation infrastructure	Rehabilitation of the tank bund, sluice, spillway, toe road and culverts
Agricultural land	Approximately 3,450 acres within the irrigation scheme
Livelihood protection	Alternative agricultural land arranged for affected farmers
Community participation	Regular consultations and community meetings conducted
Grievance management	GRC established and used to identify and address community concerns
Drinking water	Temporary water supply arrangements provided to affected locations
Water security	Improved potential for water storage and irrigation management
Groundwater	Continued recognition of the tank's role in groundwater recharge
Institutional coordination	Collaboration among PMU, irrigation authorities, DS office, GRC and contractor

The rehabilitation is expected to strengthen the reliability and safety of the irrigation system and support improved agricultural production and water management in the surrounding communities.

7. Outcome Analysis

Economic Outcomes

The improved irrigation infrastructure is expected to contribute to more reliable agricultural production and strengthen the livelihoods of farming households dependent on the Kalmadu irrigation scheme.

The temporary provision of alternative agricultural land also helped protect farmers from significant livelihood losses during the construction period.

Improved water storage and irrigation infrastructure can further support the expansion of agricultural activities and improve the productive use of available agricultural lands.

Social Outcomes

The project strengthened community participation through regular consultations, GRC meetings and engagement with Farmer Organizations.

The establishment of a direct communication mechanism allowed communities to raise concerns and participate in identifying solutions to emerging issues.

The alternative agricultural land arrangement and temporary drinking-water supply demonstrated the project's commitment to minimizing adverse social impacts and protecting vulnerable communities during construction.

Water Security Outcomes

The rehabilitation of the Kalmadu Tank is expected to improve the safety and functionality of the irrigation system and strengthen water management.

The tank's role extends beyond irrigation, as it contributes to groundwater recharge and supports domestic water needs, livestock, schools, health facilities and religious institutions in the surrounding areas.

The project's response to temporary drinking-water shortages also highlighted the importance of considering the wider community water-security functions of irrigation infrastructure.

8. Before and After Comparison

Indicator	Before / During Rehabilitation	After Rehabilitation / Project Contribution
Tank bund condition	Deteriorated and vulnerable	Strengthened and rehabilitated
Irrigation structures	Damaged / deteriorated	Rehabilitation undertaken
Water management	Limited by infrastructure condition	Improved infrastructure for better water management
Farmer livelihoods	Vulnerable to temporary water shortages	Alternative agricultural land arranged during construction
Community participation	Limited formal engagement	Active GRC and community consultation mechanisms
Grievance management	Limited direct mechanism	GRC established and operational
Drinking-water concerns	Water shortages reported during rehabilitation	Temporary water supply provided to affected areas
Water security	Vulnerable to infrastructure deterioration	Improved potential for reliable water storage and management

9. Key Lessons Learned

The Kalmadu Tank Rehabilitation provides several important lessons for future irrigation and water-resource development projects.

First, infrastructure rehabilitation should be implemented together with social safeguard measures. Even when the long-term benefits are significant, construction activities can create temporary impacts on communities.

Second, community participation is essential for identifying real impacts. Concerns regarding agricultural water availability and drinking water were identified through direct engagement with Farmer Organizations and GRC members.

Third, grievance mechanisms can support practical problem-solving. The GRC provided a structured platform for communities to communicate concerns and helped project authorities respond to emerging issues.

Fourth, livelihood restoration should be timely and practical. The arrangement of alternative agricultural land helped reduce the impact of temporary loss of irrigation water on affected farmers.

Finally, irrigation infrastructure should be viewed as part of a wider water-security system. The Kalmadu Tank supports not only agriculture but also groundwater recharge and the water needs of households and community institutions.

10. Conclusion

The Kalmadu Tank Rehabilitation demonstrates how infrastructure development can be strengthened through meaningful community engagement, effective grievance management and proactive livelihood protection.

While the rehabilitation works created temporary challenges for communities dependent on the tank, the project responded through continuous consultation and coordination among the PMU, Farmer Organizations, GRC, irrigation authorities, local government institutions and the contractor.

The arrangement of alternative agricultural land helped protect farmers' livelihoods, while temporary drinking-water supply measures supported communities facing water shortages during the rehabilitation period.



provided drinking water quality accepted by Community

The Kalmadu experience demonstrates that successful water-resource management is not limited to the physical rehabilitation of infrastructure. It also requires listening to communities, responding to their concerns and ensuring that development benefits are achieved without leaving vulnerable groups behind.

The project therefore provides a valuable example of how integrated irrigation rehabilitation, social safeguards and community participation can work together to strengthen water security, protect rural livelihoods and build more resilient communities in Sri Lanka.