



Water Security and Smart Management

Highlights

- Water security goes beyond availability—it encompasses safe, reliable, affordable, and equitable access while preserving ecosystems and adapting to increasing risks from climate change, urbanisation, and pollution.
- Despite abundant rainfall and river systems, the country faces seasonal imbalances, poor distribution, and growing competition between agriculture, industry, and domestic needs, exacerbated by inefficient infrastructure.
- IoT sensors, AI-based leak detection, precision irrigation, and real-time monitoring dashboards are revolutionising efficiency. However, their adoption in Sri Lanka is limited, especially at local levels.
- Technology must be made affordable, easy to use, and inclusive of rural communities and marginalised users. There's a gap between advanced solutions and local capacity, which must be bridged through training and decentralised deployment.
- Fragmented mandates, poor enforcement, and weak inter-agency coordination limit the impact of existing policies. Integrated, cross-sectoral governance is needed, backed by updated legal and regulatory frameworks.
- Groundwater is crucial for resilience during dry seasons, but it's under-monitored and unregulated. Maintaining environmental flows (E-flows) in rivers is vital for sustaining biodiversity and downstream water users.
- Sri Lanka imports significant “virtual water” embedded in goods like rice and vehicles. This hidden dimension shows that water challenges are also linked to trade, consumption, and economic structure.

- While most Sri Lankans have toilets, only ~3% of wastewater is treated. Untreated sewage pollutes groundwater and surface water, especially in urban areas, undermining health and water quality.
- Ancient tank and irrigation systems worked in their time but are ill-equipped for modern demands and climate patterns. They need to be retrofitted with smart controls and updated practices.
- Irrigation gets the bulk of water resources, yet contributes little to GDP compared to industrial use. Rational allocation based on economic returns, environmental cost, and social need is essential.

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Recommendations

- Deploy low-cost, adaptable tech (e.g., solar pumps, soil moisture sensors) with widespread training and support for local government officials, farmers, and utilities to enable equitable use.
- Finalise and enforce a coherent national water policy that integrates irrigation, urban use, disaster risk, climate adaptation, and pollution control, with clear roles for all institutions.
- Use tax incentives, green bonds, and mandatory water disclosures to encourage industries to adopt water recycling, rainwater harvesting, and wastewater treatment technologies.
- Integrate sustainability education into schools and community programs. Empower people to monitor water use, report pollution, and participate in local water governance decisions.