



# INTERNATIONAL WATERS EXPERIENCE NOTES

## From Regulation to Cultivation: Advancing Wastewater Reuse in Trinidad and Tobago



**Abstract:** Under the GEF CReW+ Project, Trinidad and Tobago advanced wastewater reuse through the development of its first national standard and the design of a supporting pilot project. Executed by GIZ with national partners, the Wastewater Reuse Standard – Agricultural and Other Applications (TTS 664:2022) establishes parameters for safe reuse of treated effluent. A subsequent viability study designed a pilot to irrigate crops, scheduled for implementation in early 2026. Together, these initiatives bridge regulation and practice, demonstrating how policy reform, stakeholder engagement, and adaptive management can drive sustainable water reuse across the Wider Caribbean Region.

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# **From Regulation to Cultivation: Advancing Wastewater Reuse in Trinidad and Tobago**

Experience of the GEF - sponsored

## **An integrated approach to water and wastewater management in the Wider Caribbean Region using innovative solutions and sustainable financing mechanisms (GEF CReW+ Project)**

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### **PROJECT DESCRIPTION**

The GEF CReW+ project is a partnership project funded by the Global Environment Facility (GEF) that is being co-implemented by the Inter-American Development Bank (IDB) and the United Nations Environment Programme (UNEP) in 18 countries of the Wider Caribbean Region (WCR). This project builds upon its previous successful phase “The Caribbean Regional Fund for Wastewater Management (CReW)” project (2011-2017). GEF CReW+ is being executed by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the Organisation of the American States (OAS) and the Secretariat of the Cartagena Convention (CAR/CRU) on behalf of the IDB and UNEP respectively. The GEF CReW+ project provides innovative solutions and mitigation strategies for untreated water to improve public health and ecosystem services.

The objective of GEF CReW+ in Trinidad and Tobago is to strengthen national water and wastewater governance, develop sectoral standards, and foster sustainable reuse initiatives. This experience note focuses on the activities implemented to advanced national policy coherence by developing the country’s first Wastewater Reuse Standard – Agricultural and Other Applications (TTS 664:2022) and how this this regulatory achievement was supported with the design and future implementation of a pilot project that will demonstrate agricultural reuse in practice.

### **THE EXPERIENCE**

#### **Issue**

Trinidad and Tobago faces persistent challenges in wastewater management, including limited reuse of treated effluent and high levels of pollution in surface and coastal waters. Insufficient infrastructure, weak regulatory enforcement, and a lack of reuse-oriented policies have long prevented the country from capturing the resource value of treated wastewater.

At the same time, the agricultural sector faces increasing water stress and competition for freshwater. Reusing treated effluent presents a sustainable alternative to supplement irrigation needs while reducing pollution loads and improving resilience to climate variability. However, the absence of national reuse standards and public scepticism regarding the safety of reclaimed water have hindered adoption.

The GEF CReW+ intervention thus addressed a dual gap, the regulatory vacuum governing reuse practices, and the need to build public and institutional confidence through demonstration of safe, productive applications.

## Addressing the Issue

In order to address these challenges, the GEF CReW+ project adopted a two-phase strategy combining policy reform and practical application.

**Phase I – Development of the Wastewater Reuse Standard.** In collaboration with the Trinidad and Tobago Bureau of Standards (TTBS), the executing agency (GIZ) and the consulting team conducted a comprehensive review of the policy and legal framework for wastewater management. The process included benchmarking international reuse standards, conducting stakeholder consultations, and forming a multi-agency Specification Committee to guide development. The resulting TTS 664:2022 standard defines permissible uses, quality parameters, and monitoring procedures for the safe reuse of treated effluent in agriculture and other applications. The standard was approved by the TTBS Board in late 2022 and subsequently gazetted, marking a milestone in national water governance.

**Phase II – Viability Study for Agricultural Reuse Pilot.** Building on the regulatory foundation, CReW+ initiated a viability study to design a pilot project applying reclaimed water for irrigation. The study assessed water demand, treatment plant proximity, infrastructure needs, and compliance with the new standard. It also defined an action plan for supply logistics, disinfection, monitoring, and cost evaluation. The pilot, scheduled for early 2026, will use reclaimed water under controlled conditions to test safety, productivity, and farmer acceptance.

## RESULTS AND LEARNING

The development of the wastewater reuse standard represents a major step forward in integrating reuse into Trinidad and Tobago's national policy framework. It provides a clear regulatory foundation for future investments and strengthens inter-agency coordination between the Ministry of Public Utilities (MPU), TTBS, the Environmental Management Authority (EMA), and the Water and Sewerage Authority (WASA).

The process also demonstrated effective collaboration under challenging conditions. Pandemic-related restrictions and limited institutional bandwidth were overcome through sustained engagement, trust-building, and support from local academic partners such as the University of the West Indies. The standard's approval process underscored that transparency, stakeholder participation, and consistent technical support are key to policy legitimacy and ownership.

The viability study extended the impact of the standard from policy to practice. It defined practical pathways for reuse in agriculture and provided a blueprint for monitoring water quality, soil health, and crop performance. The study confirmed that public acceptance and trust will depend heavily on visible results from pilot implementation. This reinforces the importance of demonstration projects as bridges between policy and widespread adoption.

The experience in Trinidad and Tobago offered several important lessons. Building trust between international consultants and local counterparts proved essential for sustaining progress, especially as the process required continuous dialogue, technical exchange, and adaptation to institutional realities. The development of the reuse standard also demonstrated that true national ownership emerges only when drafting, validation, and training are participatory, allowing local institutions to shape and internalize the outcomes. Finally, the work confirmed that while technical standards provide the necessary regulatory foundation, they alone are not enough to change behavior. Demonstration projects and clear communication of real-world benefits are equally vital to building public confidence and encouraging adoption of wastewater reuse practices.

## REPLICATION

The Trinidad and Tobago experience offers a replicable model for other Caribbean and Latin American countries that aim to integrate wastewater reuse into agricultural and industrial sectors. The two-phase approach, first regulation, then demonstration, provides a logical sequence for institutionalizing reuse.

Countries can adapt this model by first defining standards based on local risk and capacity and then developing pilots that validate and promote uptake among end users.

The reuse standard (TTS 664:2022) now serves as a reference for regional harmonization efforts under the Cartagena Convention's Land-Based Sources Protocol. Once the pilot is implemented, its results will provide empirical data and operational experience for future scaling, including potential integration into national irrigation programs and circular economy strategies.

### **SIGNIFICANCE**

The CReW+ intervention in Trinidad and Tobago is significant because it bridges policy reform with practical innovation. The development of the country's first wastewater reuse standard and the design of a pilot for agricultural application represent a comprehensive approach to advancing water security and sustainable agriculture.

This case demonstrates how regional cooperation and technical assistance can catalyze change in small island states by combining regulatory innovation, stakeholder engagement, and demonstration planning. It also underscores the broader value of adaptive project management: even before physical implementation, foundational work can build legitimacy, guide investment, and inspire replication across the Wider Caribbean Region.

By turning policy into practice, Trinidad and Tobago is positioning itself as a regional leader in safe and sustainable wastewater reuse, transforming what was once considered waste into a resource for resilience, productivity, and environmental stewardship.

### **REFERENCES**

[www.gefcrew.org](http://www.gefcrew.org)

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### **KEYWORDS**

- ◆ Agriculture Water reuse Standards
- ◆ Agriculture water reuse pilot
- ◆ Trinidad and Tobago

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