INTERNATIONAL WATERS EXPERIENCE NOTES

http://www.iwlearn.net/experience 2025

Flowing Forward: Wastewater Policy, Financial and Infrastructure Enhancing in Belize

Abstract: In Belize, the GEF CReW+ project successfully implemented a comprehensive approach of support towards Integrated Water and Wastewater Management (IWWM) which involved promoting water governance through the development of a National Policy and Strategy on Wastewater Management, support the strengthening of the Belize Wastewater Revolving Fund (BWRF) to finance the installation of small-scale interventions, and accelerate investment through the development of complementary studies for the design of the Caye Caulker wastewater treatment plant. The formation of technical committees for the implementation of the activities was a very valuable resource to achieve efficiently and effectively the goals of the activities, a lesson that can be replicated in similar endeavors. By combining legislative advancements with practical initiatives, such as the approach used in the GEF CReW+ Project in Belize, countries can advance and achieve holistic and sustainable wastewater management that effectively safeguards both environmental and public health concerns.

Pedro Moreo, Daniela Araya, and Marle Reyes

GEF CReW+ Project Coordination Group

Flowing Forward: Wastewater Policy, Financial and Infrastructure Enhancing

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)

GEF-ID: 9601

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. Briefly summarize the project's objectives, expected outcomes and timeframe (from the project document or elsewhere).

In the case of Belize, the main objective of the GEF CReW+ project is to support the development of policy, regulatory and financial instruments to improve water and wastewater management systems in its urban and island environments, as well as to channel resources for innovations in wastewater systems, thus reducing current gaps in services and improving water quality and environmental sustainability. The project in Belize involves activities from three of the four components of the project:

THE EXPERIENCE

Issue

It is estimated that only 16 percent of Belize's population is connected to a sewage treatment plant. In Belize City, sewerage services are available to 8,200 households (ca 50%), in Belmopan City 2,100 (ca 45%) and in San Pedro Town 1,100 (ca 30%). Furthermore, over the past ten years the percentage of the Belizean population connected to sewer connection decreased, from 100% in 2012 to 95% in 2021. Moreover, the sewage charges are low when comparing to the Latin American and international levels, reaching only 20% of the water rates, quite below the benchmark in other Latin-American countries, such as 53%, in Managua (Nicaragua) and 100%, in Montevideo and Buenos Aires.

In other parts of the country, where sewerage systems are not available, the population uses septic tanks or pit latrines, many of these are poorly constructed septic tank facilities or unimproved pit latrines. Much of the existing septic systems are not functioning properly, generally due to the designs which are not to standard and only partially treat the raw sewage and grey water. There is also a lack of proper maintenance and desludging of the septic tanks. This fallouts in direct impacts that can immediately contaminate any nearby water body such as creeks, rivers, sea, and underground water. In rural areas, private sector septic cleaners collect the sewage, but lack proper disposal sites of sewage waste for treatment.

Also, in the sectors of Industry and Agriculture, from distilleries and breweries to sugar processing plants, citrus, bananas, shrimp and aquaculture, discharge wastewater every day. Effluent regulations have been established for these different industries since 2009, however, enforcement is lacking due to limited monitoring, which leads to lack of control of industrial pollution. The monitoring and evaluation processes are inadequate and must be upgraded to allow proper regulation of the sector. Currently, there are only 60 wastewater licenses emitted for all the country, but that is insufficient. The industries/companies are not reporting in adequate frequency and the information reported to the Department of the Environment of Belize in not up to date.

The challenges of inadequate wastewater management – inadequate sanitation – affects all members of society. It should be addressed in a coherent and consistent way. The effects of this wastewater management challenge are threefold:

- Human Health – particularly for children and their quality of life, their education and the development potential of the communities.
- Economic – the impact on the rapidly developing tourism sector could be catastrophic – while the effect on household communities in terms of the cycle of poverty, illness and lost educational and economic potential is no less important.
- Environmental – Inadequate sanitation leads to dispersed and diffuse pollution of water sources, damage to reef and coastal ecosystems which may be irreversible.

For industrial and agricultural wastewater, there is a lack of systematic data to be able to determine the pollution per source, area and water body. In this context, lack of clear policy, lack of monitoring systems and lack of adequate tariffs, the project plays an important role. This is described in the next section.

Addressing the Issue

The approach for Belize was comprehensive, it involved promoting water governance through the development of a National Policy and Strategy on Wastewater Management, support the strengthening of the Belize Wastewater Revolving Fund (BWRF) to finance the installation of small-scale interventions, and accelerate investment through the development of the design of the Caye Caulker wastewater treatment plant and complementary studies.

The policy development process for wastewater management in Belize involved the establishment of a Wastewater Policy Steering Committee to gather stakeholder input and establish key principles. One significant addition was the "Polluter Pays" principle, ensuring polluters cover the cost of wastewater cleanup. Other principles included harmonizing legal reforms with national priorities, implementing wastewater monitoring systems, and adopting a Circular Economy approach. A critical early activity identified was conducting a survey of polluting loads across the country over the next two years, aligning with conservation areas. Despite a tight schedule, a comprehensive first draft was delivered, necessitating rapid stakeholder feedback. Due to time constraints, a questionnaire was prepared tailored to each stakeholder, addressing specific concerns. This prove to be an effective and efficient way to gather critical information in a timely manner.

On the financing side, revitalizing Belize's Revolving Fund was essential to ensure sufficient resources for achieving policy goals in wastewater management, such as expanding municipal wastewater treatment coverage and improving quality. The fund previously only financed a few large projects, primarily benefiting Belize Water Services Limited (BWSL). The first step involved reactivating and restructuring the fund's board, followed by establishing a technical committee led by the Department of the Environment (DOE) to drive project generation continuously. Terms of reference were developed for the committee, and criteria for project selection were discussed and formalized using score point sheet formats. Interest rate suggestions were proposed to prioritize sanitation areas based on social and environmental aspects. The fund may also support increasing connections to wastewater treatment plants, potentially financing homeowner connection costs through grants from BWSL. This initiative could stimulate wastewater treatment plant connections through incentivization programs.

The third activity of the project involved conducting a viability study for a wastewater treatment solution in a critical area, specifically focusing on the small island of Caye Caulker. The island is divided into a developed southern part with the village of Caye Caulker and a less developed northern part, with “The Split” between them being of high touristic and environmental value. The study considered the island's unique characteristics, such as fluctuating tourist numbers between high and low seasons and the absence of a centralized wastewater system, resulting in reliance on household septic tanks. However, the lack of a sludge treatment system leads to the disposal of fecal sludge in sensitive mangrove areas. After evaluating the collection system and wastewater treatment options, suitable recommendations were provided that will effectively improve wastewater management in the area when implemented. The feasibility study revealed that the required investment exceeds the village's financial capacity, suggesting the potential use of the Revolving Fund to finance the project. This highlights the fund's role in supporting critical infrastructure projects beyond the community's financial capabilities.

In order to maximize the funds committed to Belize, the project supported with additional activities to complement the work such as: (i) a brief analysis on the pollution monitoring process in Belize; (ii) Key elements for establishing a Water Pollution Charging System for Belize based on the Polluter Pays Principle; (iii) Technical Standard Norms for Septic Tanks; (iv) Belize Wastewater Revolving Fund – Recommendations; (v) Orange Walk sanitation system preliminary viability study for collection and treatment alternatives; and (vi) Public Awareness Campaign.

RESULTS AND LEARNING

Belize is now on its way to have for the first time a National Policy and Strategy on Wastewater Management, the process to get there was carefully planned and considered important aspects to ensure a successful completion. The wastewater management policy-making process yielded several crucial lessons. Firstly, the presence of a consultant with local trust and respect was instrumental, facilitating smooth progress and stakeholder engagement. Secondly, regular meetings, physical visits, and sharing draft policies beforehand fostered trust and enabled productive discussions. Moreover, establishing key principles early on provided guidance for policy development, particularly in Integrated Water Resources Management (IWRM) activities. The establishment and active engagement of the Technical Committee in open discussions helped build consensus, enhancing the policy's future effectiveness. Additionally, involving stakeholders through questionnaires ensured diverse perspectives were considered, resulting in a well-informed policy. A well-formed committee with skilled leadership ensured stakeholder representation and kept the process on track.

Pitfalls were also identified to be avoided in similar processes. Rushing the process and placing undue pressure on stakeholders could lead to a policy that fails to address all stakeholders' needs adequately. Therefore, allowing sufficient time for feedback and discussions is crucial. Furthermore, defining concrete goals before establishing a comprehensive baseline may lead to unrealistic expectations and misaligned priorities. Taking time to gather and verify relevant information before setting goals ensures a realistic, evidence-based policy. Continuity within the Steering Committee and maintaining communication channels through regular progress reports and meetings are vital for successful policy implementation. These lessons underscore the importance of effective stakeholder engagement, clear communication, strong leadership, and ongoing communication for successful wastewater management policy development and implementation.

With regards the success of building and enhancing the revolving fund for wastewater management relied heavily on the effectiveness of the committee overseeing its operations. Key to this success was ensuring capable leadership within the committee, particularly individuals capable of articulating and integrating the demands and interests of stakeholders, notably the Ministry of Finance. The involvement of the chief from the relevant ministry was deemed crucial for this purpose. Additionally, establishing a technical committee under the leadership of the Department of Environment (DOE) was essential. This committee was tasked with evaluating potential projects based on technical and environmental criteria, ensuring efficient fund utilization. Transparent project selection criteria, developed through discussions and score point sheet formats, facilitated objective decision-making processes.

Overall, the success of the wastewater revolving fund hinged on the presence of a well-structured committee with capable leadership and clear project selection criteria. Sustaining these efforts necessitates the maintenance of a cohesive and committed group beyond the initial tasks, ensuring continued progress and impact in wastewater management initiatives.

As for the viability study, the participation of a committed water and sanitation service provider in the study proved to be essential for several reasons. Firstly, their understanding of the local context and possession of relevant local data ensured that consultants had access to necessary information, allowing for a study that considered practical realities on the ground. Secondly, the service provider's involvement is crucial for the implementation phase, as they will be responsible for supporting the execution of the identified wastewater treatment solution. However, it's also important to note the significance of involving the main executor of the project from the beginning during the design stage. Failing to do so can lead to challenges and setbacks during both the development and implementation phases of the selected solution. The study increases the bankability of the proposed intervention, showing its feasibility puts Belize closer to bridging the gap on wastewater management in a critical location, not only for the environment but also for the country's economy by supporting the attractiveness of the tourism industry in the area.

REPLICATION

The experience from the implementation of the project offers valuable insights for potential replication in development of Policy elsewhere. Firstly, the utilization of a trusted local consultant proved to be pivotal, showcasing the importance of engaging individuals who understand the local context and are respected by stakeholders. This approach not only facilitated smooth progress but also fostered trust among stakeholders, which is essential for successful policy development. Secondly, the emphasis on effective communication, including frequent meetings, physical visits, and sharing draft policies in advance, lays a foundation for transparent and inclusive decision-making processes. By incorporating diverse perspectives early on through these means, stakeholders are more likely to feel heard and engaged throughout the process. Furthermore, the practice of establishing key principles from the outset serves as a guiding framework for policy development, ensuring alignment with broader objectives such as Integrated Water Resources Management (IWRM). This proactive approach not only provides clarity but also helps in building consensus among stakeholders. Lastly, the identification of pitfalls to avoid, such as rushing the process and prematurely defining goals, highlights the importance of patience and thoroughness in policy development. By learning from these experiences and proactively addressing potential challenges, future projects aimed at developing similar policies can increase their likelihood of success and contribute meaningfully to sustainable water management efforts globally.

SIGNIFICANCE

Advancing legislation in wastewater management is undoubtedly crucial, particularly a National Policy since is the root for establishing regulatory frameworks, standards, and guidelines that ensure the protection of water resources and public health. However, supporting countries in practical initiatives alongside legislative efforts is equally imperative. Legislation provides the necessary legal backbone, but practical mechanisms and initiatives are essential for effective implementation on the ground. This includes investing in infrastructure development, such as wastewater treatment plants and sewage systems, to improve sanitation and reduce pollution, as well as to identify financial mechanisms to implement such projects. Additionally, capacity-building programs for stakeholders, including local authorities, communities, and water management professionals, are vital for enhancing operational efficiency and promoting sustainable practices. Furthermore, supporting research and innovation in wastewater treatment technologies fosters continuous improvement and adaptation to evolving challenges. By combining legislative advancements with practical initiatives, such as the approach used in the GEF CReW+ project in Belize, countries can achieve holistic and sustainable wastewater management that effectively safeguards both environmental and public health concerns.

REFERENCES

www.gefcrew.org

Pedro Moreo, GEF CReW+ Project Regional Coordinator

KEYWORDS

What 2-5 keywords could be used to help others search and find this experience note? Please provide at least one of each of the following:

- Belize
- National Wastewater Policy
- Belize Wastewater Revolving Fund
- Caye Caulker