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2025

Crafting conservation: Enhancing Watershed Management in Guatemala



Abstract: In Guatemala, the GEF CReW+ project aimed to enhance water resource management by updating a guide for micro-watershed management. Through a participatory process involving stakeholders, including communities, government agencies, and NGOs, the guide was updated to reflect current environmental conditions and management practices. Emphasis was placed on capacity building, with training programs conducted to empower local professionals and institutions. Intersectoral collaboration and stakeholder engagement were promoted to foster a sense of ownership and shared responsibility for water management initiatives. The project's significance lies in its adoption of a micro-watershed management approach, recognizing the critical role these smaller hydrological units play in water resource management. By focusing efforts at the micro-watershed level, the project activities support the management of localized challenges and empowered local stakeholders to drive sustainable development practices. The micro-watershed management approach promotes community engagement, context-specific interventions, and sustainable outcomes, ultimately leading to improved water quality, ecosystem resilience, and socio-economic well-being.

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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.

The objective of CReW+ is to support Guatemala in its institutional development and management capacities to face the challenges of the water and sanitation sector, by means of instruments that promote good practices for integral water and sanitation management. The program focused on supporting the development of management and implementation capacities in the Motagua River basin.

THE EXPERIENCE

Issue

Guatemala faces a critical challenge with the declining quality of its water resources, impacting public health, aquatic ecosystems, and economic sectors. Continuation of this trend could exacerbate Guatemala's vulnerability to climate change, as evidenced by its ranking among the 20 most susceptible nations according to the 2021 Global Climate Risk Index by Germanwatch. Extreme weather events may exacerbate sediment, nutrient, and pollutant levels in water bodies, further compromising freshwater ecosystems and potable water sources. Statistics from the Ministry of Health reveal that diarrheal diseases rank as the second leading cause of morbidity and mortality in Guatemala, trailing only behind respiratory infections.

To address these pressing issues, the Ministry of Environment and Natural Resources (MARN) is spearheading initiatives, particularly through the Vice Ministry of Water and the Directorate of Watersheds (DRHyC), to foster sustainable management and safeguard watersheds. Legislation such as the Law for the Protection and Improvement of the Environment underscores the imperative to promote responsible utilization and holistic stewardship of water basins, springs, and water sources. Since 2018, Guatemala has prioritized micro-watersheds within the Motagua River watershed.

Unfortunately, the Motagua River watershed bears the brunt of environmental degradation due to unsound practices and insufficient regulation in activities like coffee and banana cultivation, urbanization, and industrial operations. The region suffers from inadequate water and sanitation coverage, particularly in small, dispersed communities lacking the resources to cope with escalating water stress and declining water quality. Given these circumstances, comprehensive water resource management is indispensable.

Addressing the Issue

Recognizing the escalating environmental challenges aggravated by climate change and the vulnerability of the majority of the population to various phenomena such as hurricanes, heavy rains, tropical storms, droughts, and frosts, the Ministry of Environment and Natural Resources (MARN) requested the GEF CReW+ project to revise the Guide for the Preparation of Micro-Watershed Management Plans, initially crafted in 2009. This guide has served as a cornerstone for developing watershed management platforms, albeit informally, aiding in the creation of planning instruments at the micro-watershed level.

Given the evolving national context, updating this document became imperative to equip local managers and stakeholders with a practical tool that reinforces an integrated water resource management approach, aligning with current national priorities. Furthermore, this revision aims to enhance governance aspects to ensure the inclusive participation of all stakeholders in water resource utilization, management, and decision-making processes. It also seeks to align with recent strategic and planning instruments at the national level, fulfill international commitments, and integrate cross-cutting themes, especially addressing climate change concerns.

One of the aspects to consider of extremely importance was for the new guide to encompass not only management aspects but also focus on the protection and conservation of watersheds, sub-watersheds, and micro-watersheds, in accordance with Governmental Agreement 19-2021. The aim of this agreement is to promote the preservation and sustainable management of Guatemala's watersheds through an ongoing process facilitating the formulation or updating of watershed assessments as the foundation for implementing natural resource management plans to address environmental degradation issues.

The generation of this guide involved activities in three stages:

Stage I: Determination of baseline and identification of aspects to be modified. During this stage, a comprehensive review of territorial gaps and adjustments was conducted, considering the role of municipalities and existing legal instruments. Key stakeholders were identified for a participatory consultation process to fill information gaps, including the collection of previous experiences and lessons learned from similar projects. Additionally, changes in the national context, such as the creation of the Vice Ministry of Water within the MARN and the issuance of Government Agreement 19-2021 promoting the protection and conservation of Guatemala's watersheds, were considered.

Stage II: Technical construction of the Guide. In this stage, information was collected through interviews with various stakeholders at the national, municipal, departmental, and community levels. A first draft of the document was formulated based on the baseline and collected experiences, and internal and external discussions were organized to review and improve the functionality of the guide. Feedback from key stakeholders was received and incorporated to prepare a final version ready for a consultative process.

Stage III: Consultative process of the Guide and socialization. During this phase, a process of circulating the guide to receive feedback was carried out. Virtual workshops, face-to-face meetings, and visits to key stakeholders were conducted to gather opinions and suggestions. Participation was sought from different entities, including international organizations, NGOs, universities, local governments, and communities. After incorporating the received feedback, the final draft was presented to the Technical Advisory Committee of the MARN for analysis and validation. Finally, following MARN approval, the guide was officially endorsed on May 10, 2022.

Although the project originally focused on creating the guide, the importance of continuing with training and socialization workshops to ensure its adoption and effective implementation was recognized. These actions were carried out in collaboration with the MARN's Watershed Directorate, aimed at technical staff and other stakeholders of selected micro-watersheds within the Motagua Basin.

Through a participatory process, a training plan was developed using the generated Guide. This involved creating an assessment tool to identify knowledge gaps and learning preferences among prioritized

municipality staff. Based on this, a training proposal was formulated and validated by the Watershed Directorate and the Directorate of Training and Social Participation of MARN.

Following an analysis of scalability, an online Diploma was designed to broaden reach. This resulted in the installation of the **"Diploma in Integrated Water Resources Management with an Emphasis on Micro-Basin Management Plans (PLAMIM)"** on the Ministry of Environment and Natural Resources platform. Additionally, a toolbox was created to accompany training, including study manuals, workshop development guides, and technical tools for micro-basin management planning.

Execution of the strengthening plan involved virtual Diplomas and two in-person workshops for municipality staff, focusing on guide utilization and plan development. Finally, workshops for prioritized municipality staff and MARN technicians, aimed at providing guidance on Micro-Basin Management Plan development from a self-management perspective.

The new guide integrates lessons learned from various entities across the country and serves as a practical tool for local, municipal, departmental, and national managers and stakeholders, reinforcing an integrated water resource management approach.

RESULTS AND LEARNING

The GEF CReW+ project has yielded significant results in enhancing water resource management and capacity building in Guatemala. The updating of the Guide for the Preparation of Micro-Watershed Management Plans (PLAMIM) represents a significant milestone in strengthening water management practices in Guatemala. The participatory construction of the document, involving communities, institutions, and other stakeholders, facilitated its validation and implementation, ensuring that it reflects local needs and realities. Additionally, the commitment and close collaboration of the Ministry of Environment and Natural Resources throughout the consultation and formulation process were crucial to ensuring its adoption as a nationally applicable instrument and the sustainability of the generated product. This update not only provides a practical guide for integrated water resource management but also promotes intersectoral cooperation and community participation in the preservation and conservation of aquatic ecosystems, thereby enhancing the country's environmental and socioeconomic resilience.

The project's emphasis on capacity building is of paramount importance as it ensures the practical application of the guide and its sustainability. By equipping stakeholders with the necessary knowledge and skills, the project fosters a deeper understanding of integrated water resource management principles and techniques. This not only enhances the effectiveness of implementing the guide but also empowers communities to take ownership of water management initiatives in the long term. Through targeted training programs, workshops, and the development of educational resources, the project cultivates a cadre of trained professionals capable of driving forward sustainable water management practices. Furthermore, by fostering collaboration and knowledge sharing among stakeholders, the project creates a supportive ecosystem conducive to continued learning and adaptation. Ultimately, investing in capacity building ensures that the benefits of the guide extend far beyond the duration of the project, contributing to lasting improvements in water resource management and environmental sustainability.

Furthermore, the project's focus on scalability led to the design of an online Diploma in Integrated Water Resources Management (IWRM) with an emphasis on Micro-Basin Management Plans (PLAMIM). This innovative approach allows for broader access to training resources and ensures the sustainability of capacity-building efforts beyond the project's completion. By hosting the Diploma on the Ministry of Environment and Natural Resources platform as a self-managed MOOC, the project ensures that training materials remain accessible to all interested individuals, regardless of geographical location or time constraints.

Overall, the results of the project demonstrate significant progress in enhancing water resource management and capacity building in Guatemala. By equipping municipal staff with the necessary knowledge and tools, the project has empowered communities to implement sustainable water management practices that promote environmental conservation and improve livelihoods. Moving forward, it is essential to continue building on these achievements and further strengthen collaboration among stakeholders to ensure the long-term sustainability of water resource management efforts in Guatemala.

REPLICATION

The experience of implementing the guide for watershed and micro-watershed management offers numerous benefits, including improved water management practices, enhanced collaboration and stakeholder engagement, capacity building and knowledge exchange, and increased resilience to environmental change. Replication of this approach can make significant strides towards achieving sustainable water management and ensuring the well-being of present and future generations. However, it would be necessary to consider that adequate financial resources are essential for conducting training programs, workshops, and other capacity-building activities, as well as for the development and dissemination of educational materials.

The success of this experience lays in ensuring strong collaboration and coordination among various stakeholders involved in the process. Effective implementation of the guide requires active participation and buy-in from communities, government agencies, non-governmental organizations, and other relevant entities. Establishing clear communication channels and mechanisms for decision-making and problem-solving can help address potential conflicts and ensure that all stakeholders are aligned in their efforts.

Furthermore, building local capacity and institutional support is crucial for sustaining the benefits of the implementation process over the long term. This includes investing in training and skills development for local professionals, establishing mechanisms for ongoing monitoring and evaluation, and integrating the principles of integrated water resource management into existing policies and practices.

Overall, successful replication of this experience depends on securing adequate resources, fostering strong collaboration among stakeholders, adapting the guide to the local context, and building local capacity and institutional support. By addressing these challenges and meeting these conditions, others can replicate and benefit from the experience of implementing the guide for watershed and micro-watershed management.

SIGNIFICANCE

The project's focus on strengthening management capacities at the micro-watershed level is crucial for achieving sustainable water resource management and environmental conservation. Micro-watersheds play a pivotal role in maintaining water quality and quantity, serving as natural filters and supporting diverse ecosystems. By enhancing management capacities at this level, stakeholders can implement targeted interventions to mitigate pollution sources, protect habitats, and preserve water resources.

Additionally, micro-watersheds are vital for supporting local livelihoods and socio-economic development, providing essential ecosystem services such as clean water and soil fertility. Strengthening management capacities enables improved access to these services and promotes sustainable development practices. Moreover, focusing on micro-watersheds facilitates a holistic and integrated approach to water resource management, considering the interconnectedness of land, water, and ecosystems. This approach ensures that management interventions are context-specific, participatory, and sustainable, leading to more effective outcomes and lasting benefits for ecosystems and communities.

REFERENCES

www.gefcrew.org

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KEYWORDS

- ◆ Micro-watershed
- ◆ Capacity building

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