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**“An integrated approach to wastewater management in the
Wider Caribbean Region using innovative solutions and
sustainable financing mechanisms”**

**Review of Wastewater Policy and Legal Framework
in St. Kitts and Nevis**

National Policy on Wastewater Management

Final Report

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Project Details

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1.0 Policy Context

The Federation of St. Kitts and Nevis, like many Small Island Developing States (SIDS), faces a range of challenges in wastewater management. Urbanization, population growth, and the expansion of tourism and agriculture have increased the demand for efficient wastewater management systems. Despite efforts to regulate wastewater discharge, much of the infrastructure is outdated, undersized, or improperly maintained, resulting in untreated or poorly treated wastewater being discharged into the environment.

The recent **Situational Analysis on Wastewater Management in St. Kitts and Nevis (2024)** identified the following key challenges and gaps:

1. Infrastructure Deficiencies:

- 1.1. Most wastewater in St. Kitts and Nevis is managed through decentralized systems, including septic tanks and soakaway, with no centralized treatment facilities.
- 1.2. Existing treatment plants, such as package treatment systems in hotels and public facilities, often suffer from poor maintenance, inadequate capacity, and inefficient operations.
- 1.3. Greywater is frequently discharged directly onto streets or ghauts, contributing to environmental and public health risks.

2. Environmental and Health Risks:

- 2.1. Untreated or partially treated wastewater contaminates coastal waters, impacting coral reefs, mangroves, and marine biodiversity critical to tourism and fisheries.
- 2.2. Residential and agricultural runoff contributes to nutrient pollution, sedimentation, and the risk of proliferation of waterborne diseases.
- 2.3. Recreational and drinking water sources are vulnerable to contamination, with limited monitoring for microbial or nutrient pollutants.

3. Regulatory and Governance Gaps:

- 3.1. There is no national wastewater policy, strategy, or action plan to coordinate wastewater management efforts.
- 3.2. Outdated legislation, such as the Public Health Act and the National Conservation and Environment Protection Act, does not adequately address effluent discharge standards or enforcement mechanisms.
- 3.3. Institutional capacity is constrained, with insufficient staffing, technical expertise, and inter-agency coordination to monitor and regulate wastewater systems effectively.

4. Societal and Cultural Challenges:

- 4.1. Public awareness about the environmental and health impacts of improper wastewater disposal is low.
- 4.2. There is a perceived cultural resistance to treated wastewater reuse for purposes other than irrigation which can hinder the adoption of sustainable practices.

5. Climate Vulnerability:

- 5.1. Wastewater systems are highly vulnerable to extreme weather events, such as hurricanes and flooding, which can overwhelm or damage existing infrastructure.

5.2. Rising sea levels and coastal erosion threaten septic systems and low-lying treatment facilities.

6. **Economic Constraints:**

6.1. Current financing mechanisms are inadequate, relying heavily on private sector investments and public budgets.

6.2. A lack of structured tariffs or cost-recovery systems undermines the financial sustainability for the provision of wastewater services.

Beyond the direct environmental and public health risks, ineffective wastewater management has far-reaching socio-economic implications. Inadequate systems negatively impact the tourism sector, a key economic driver for St. Kitts and Nevis, by reducing the quality of coastal and marine ecosystems that attract visitors. The agricultural sector also suffers, as untreated wastewater pollutes water sources critical for irrigation. Furthermore, public health issues linked to waterborne diseases strain healthcare systems and reduce productivity. Addressing these challenges through sustainable wastewater management is essential not only for environmental protection but also for safeguarding national economic development and enhancing climate resilience.

This policy aims to address these gaps holistically by fostering sustainable wastewater management, safeguarding public health, and building resilience against climate impacts, in line with national development priorities and international agreements such as the **Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region** (Cartagena Convention) and its Protocol Concerning Pollution from Land-Based Sources and Activities (LBS Protocol).

2.0 Goal

The overarching goal of this policy is to **establish a sustainable, inclusive, and resilient wastewater management system** that enhances public health, protects ecosystems, and supports national economic development. By ensuring efficient wastewater collection, treatment, and reuse, the Federation seeks to reduce pollution, conserve water resources, and contribute to climate adaptation and mitigation efforts.

This policy aligns wastewater management with the principles of Integrated Water Resources Management (IWRM), recognizing wastewater as an essential component of the broader water cycle. Wastewater management should be integrated with water supply, stormwater management, and environmental protection strategies to achieve holistic water resource sustainability and resilience.

3.0 Guiding Principles

The following principles provide the philosophical foundation for the wastewater management policy and will guide its implementation across all objectives and actions:

1. **Integrated Approach**

Wastewater management will follow a “ridge-to-reef” framework, recognizing the interconnectivity between land, water, and ecosystems. Decisions will integrate wastewater management with broader water resources, land use, and environmental strategies.

2. **One Health Approach**

Wastewater management will be guided by the One Health principle, recognizing the interconnectedness of human health, animal health, and environmental health.

3. **Equity and Inclusion**

Equitable access to wastewater services will be prioritized for all citizens, with special focus on underserved rural and peri-urban communities, as well as vulnerable groups such as women, children, and persons with disabilities.

4. **Polluter Pays Principle**

Entities that discharge pollutants into the environment will be held financially accountable for mitigation and cleanup, incentivizing sustainable practices and adherence to standards.

5. **Precautionary Principle**

Actions will proactively prevent harm to public health and ecosystems, even in the absence of full scientific certainty, ensuring sustainability and resilience.

6. **Transparency and Accountability**

Open and transparent governance will underpin wastewater management. Stakeholders will have access to reliable data, and decision-makers will be held accountable for achieving policy goals.

7. **Gender Responsiveness**

Wastewater planning and implementation will recognize and address the differing needs and impacts on men, women, youth, and marginalized groups, ensuring gender-sensitive approaches and inclusiveness.

8. **Water as a Public Good**

Water, including treated wastewater, will be recognized as a shared and finite resource essential for human and ecological health. Policies will prioritize sustainable management and equitable allocation.

9. **User Pays Principle**

Users will contribute fairly to the cost of wastewater services, based on the volume and nature of their wastewater. Cost-recovery mechanisms will balance affordability with financial sustainability.

10. **Climate Resilience**

Wastewater systems will be designed and managed to withstand the impacts of climate

change, including extreme weather events, rising sea levels, and increased rainfall variability.

11. Participation and Collaboration

Stakeholder engagement will be prioritized at all stages of wastewater management, fostering partnerships with communities, the private sector, and civil society to improve outcomes.

12. Alignment with the St. Kitts and Nevis Sustainable Island Agenda (SISA)

13. Alignment with International and Regional Agreements

The policy will comply with global and regional frameworks, such as the Sustainable Development Goals (SDGs) in particular SDG 6 (Clean Water and Sanitation) and SDG 14 (Life Below Water), the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention) and its Protocol Concerning Pollution from Land-Based Sources and Activities (LBS Protocol), International Convention for the Prevention of Pollution from Ships (MARPOL) and St George's Declaration of Principles for Environmental Sustainability in the Organisation of Eastern Caribbean States (OECS), ensuring that national efforts align with broader commitments.

4.0 Policy Objectives

The National Wastewater Management Policy seeks to achieve the following:

1. Universal Access to Sanitation

- 1.1. Ensure equitable access to safe, affordable, and reliable sanitation systems for all citizens, particularly in underserved rural and peri-urban areas and vulnerable populations.
- 1.2. Emphasize strategic investments on nature-based, decentralized, community-based systems and low-cost technologies, where appropriate and feasible.

2. Public Health Safeguards

- 2.1. Strengthen wastewater treatment and monitoring to prevent contamination of drinking water sources and recreational water bodies.

3. Environmental Protection

- 3.1. Protect coastal and terrestrial ecosystems by minimizing the discharge of untreated wastewater and reducing pollution levels in critical water bodies.
- 3.2. Establish effluent discharge standards, robust monitoring systems and enforcement mechanisms.

4. Water Resource Optimization

- 4.1. Promote the reuse of treated wastewater for agriculture, landscaping, and industrial processes to alleviate pressure on freshwater resources.
- 4.2. Support the adoption of low-carbon technologies that ensure water safety and quality for reuse.

5. Climate Adaptation and Resilience

- 5.1. Climate-proof wastewater infrastructure to withstand climate impacts, including hurricanes, flooding, and sea-level rise.
- 5.2. Develop disaster risk reduction plans and protocols for wastewater systems.

6. Institutional Strengthening

- 6.1. Clarify and separate regulatory, policymaking, and service provision functions to improve accountability and efficiency.
- 6.2. Promote data-driving planning by tracking system performance, effluent quality, and compliance to inform policy and investment decisions.
- 6.3. Invest in training, tools, and resources for institutions to effectively enforce regulations and monitor wastewater systems.

7. Sustainable Financing

- 7.1. Develop innovative funding mechanisms to ensure the financial sustainability of wastewater management systems.
- 7.2. Leverage partnerships and grants to attract investments to support large-scale wastewater initiatives.

8. Policy and Regulatory Coordination

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8.1. Ensure wastewater management aligns with national plans, regional commitments, and international agreements.

8.2. Link wastewater policies with land use, climate adaptation, and integrated water resource planning for holistic solutions.

9. Stakeholder Participation and Public Engagement

9.1. Involve communities, private sector actors, and non-governmental organizations (NGOs) in wastewater project planning and implementation.

9.2. Increase public awareness of the environmental and health benefits of proper wastewater management.

5.0 Priority Areas for Policy Implementation

This section outlines the critical priority areas for implementing the wastewater management policy. These areas align with the guiding principles and objectives, addressing key challenges while promoting sustainable, equitable, and resilient solutions.

5.1 Policy, Institutional and Regulatory Framework

A robust policy, institutional and regulatory framework is essential to establish clear standards and ensure compliance in wastewater management.

- **Effluent Standards and Compliance:** Introduce discharge standards aligned with international best practices, including the Cartagena Convention's LBS Protocol, and enforce compliance through a permitting system.
- **Harmonized Legislation:** Update and harmonize key laws, such as the Public Health Act and National Conservation and Environmental Protection Act, to address gaps in effluent management and emerging challenges.
- **Integration into National Physical Development Planning:** Ensure wastewater considerations in zoning regulations, building code and land-use planning processes.
- **Guidelines for Agrochemical Runoff, Livestock Waste and Wastewater Reuse:** Develop comprehensive guidelines to manage runoff from agricultural activities and livestock operations and ensure safe wastewater reuse practices, reducing pollution risks to freshwater and coastal ecosystems.
- **Onsite Wastewater Treatment Plants Design Standards:** Establish clear design and operational requirements for a wide range of appropriate onsite treatment plants for various sectors (healthcare facilities, hotels, marinas, industry and commercial etc.) to ensure their efficiency and environmental compliance.

5.2 Wastewater Reuse and Sustainable Infrastructure Development

Infrastructure development and the promotion of wastewater reuse are critical for sustainability and resource optimization.

- **Infrastructure Modernization:** Upgrade existing treatment plants to provide secondary and tertiary treatment where applicable, ensuring treated wastewater meets quality standards for reuse.
- **Nature-Based and Decentralized Solutions:** Promote low-cost, decentralized systems like constructed wetlands, particularly in rural and peri-urban areas, while integrating their ecological value into planning processes.
- **Septage Treatment and Disposal:** Develop dedicated facilities and systems for the safe collection, transport, treatment, and disposal of septage to address gaps in on-site sanitation systems.

- **Treated Wastewater Reuse (including greywater):** Promote reuse programs to cover all purposes, including agriculture, landscaping, industrial applications, aquifer recharge, and potential potable reuse, with appropriate treatment levels.

5.3 Climate Resilience and Adaptation

Building climate resilience into wastewater systems ensures their sustainability and functionality in the face of climate challenges.

- **Resilient Infrastructure:** Retrofit and construct wastewater treatment facilities with flood-proof designs and other resilience measures to withstand extreme weather events.
- **Integrated Water and Climate Planning:** Embed wastewater management into national disaster risk reduction and climate adaptation plans, linking stormwater and wastewater systems for greater resilience.
- **Renewable Energy Integration:** Promote the adoption of renewable energy sources, such as solar and wind, to power wastewater treatment plants, reducing operational costs and carbon emissions.

5.4 Stakeholder Engagement and Community Participation

Meaningful engagement ensures the success and inclusivity of wastewater management initiatives.

- **Community Involvement:** Empower communities, including women and marginalized groups, to participate in wastewater project design, monitoring, and decision-making through capacity-building programs.
- **Private Sector Partnerships:** Facilitate public-private partnerships (PPPs) to mobilize investment and encourage private sector participation in wastewater infrastructure and services.
- **Education and Awareness Campaigns:** Develop comprehensive public education campaigns to address the full spectrum of wastewater management issues. These campaigns will:
 - Increase public understanding of the environmental and public health impacts of untreated or poorly managed wastewater.
 - Promote proper sanitation practices and discourage activities that lead to pollution, such as improper disposal of household chemicals or agrochemical runoff.
 - Address cultural and social resistance to treated wastewater reuse by highlighting its safety and benefits for agriculture, industry, and environmental conservation.
 - Build awareness about the importance of maintaining on-site sanitation systems, such as septic tanks, and the need for regular desludging and proper disposal of septage.

- Encourage community ownership of wastewater infrastructure through education on its value and long-term benefits for health, ecosystems, and economic development.

5.5 Data-Driven Planning and Monitoring

Accurate data collection and analysis are essential for effective planning, implementation, and evaluation of wastewater systems.

- **Centralized Wastewater Master Plan:** Develop a comprehensive national wastewater master plan to guide infrastructure investments, policy actions, and resource allocation.
- **Baseline Assessment:** Quantify key indicators, such as the volume of untreated wastewater, population coverage by treatment facilities, and pollution hotspots. This data will provide a benchmark against which progress can be measured.
- **Performance Monitoring and Reporting:** Establish a centralized database to track wastewater system performance, effluent quality, and regulatory compliance, and publish progress reports to ensure transparency.
- **Evidence-Based Decision-Making:** Use data to prioritize investments, identify high-risk areas, and evaluate the environmental and public health impacts of wastewater management initiatives.

5.6 Financing and Resource Mobilization

Sustainable financing mechanisms will support long-term infrastructure development and operational efficiency.

- **Cost Recovery Systems:** Implement wastewater tariffs and effluent fees based on the "Polluter Pays Principle," ensuring affordability for low-income households through subsidies.
- **International and Regional Funding:** Secure grants and loans to support large-scale infrastructure investments.

5.7 Regional Collaboration

Collaborating with regional partners will strengthen capacity and ensure alignment with shared goals and commitments.

- **Knowledge Sharing:** Partner with CARICOM / OECS member states to exchange best practices, lessons learned, and innovative wastewater solutions.
- **Regional Standards:** Align national wastewater management frameworks with regional agreements like the OECS St. George's Declaration, the Cartagena Convention's LBS Protocol and MARPOL.

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- **Joint Initiatives:** Participate in regional projects focused on addressing marine pollution, climate resilience, and integrated water resource management.

6.0 Institutional Framework

A robust institutional framework is essential for the successful implementation of the National Wastewater Management Policy. This framework ensures that roles and responsibilities are clearly defined, promotes coordination among stakeholders, and strengthens capacity for efficient service delivery.

6.1 Core Institutional Responsibilities

The following institutions will have defined roles to ensure effective governance of wastewater management:

- **Integrated Wastewater Management Committee (IWMC) [to be established]:**
 - Serve as the coordinating body for all national wastewater management activities.
 - Oversee policy implementation, monitor progress, and provide regular reports to the Cabinet.
 - Facilitate inter-agency collaboration and alignment with national development priorities and regional commitments.
 - A formal platform to bring together representatives from government agencies, the private sector, civil society, and other stakeholders.
 - Oversee the integration of wastewater management into broader water resource planning.
 - Department of Environment (DOE) should be the secretariat for the IWMC and lead agency to champion coordination of all national wastewater management activities.
- **Environmental Health Department (EHD):**
 - Act as the lead regulatory agency responsible for enforcing effluent discharge standards, water quality monitoring and enforcement.
 - Provide technical guidance on wastewater management practices and issue permits for wastewater treatment facilities.
 - Conduct inspections of treatment systems and initiate enforcement actions for non-compliance. Inspectors from Department of Physical Planning (DPP), DOE and other agencies as needed can be made ex officio officers to aid in enforcement of regulations under the Public Health Act (PHA).
- **Local Water Utilities:**
 - Manage the operation and maintenance of centralized wastewater treatment systems or package treatment plants, community-based treatment systems, where applicable.
 - Collaborate with the EHD on monitoring and reporting water quality impacts from wastewater discharges.

- **Private Sector Operators:**
 - Design, build, operate, and treatment facilities under public-private partnership (PPP) arrangements.
 - Comply with regulatory requirements and adopt innovative, cost-effective treatment technologies.
- **Community Organizations:**
 - Support decentralized wastewater management systems through training and awareness programs.
 - Facilitate community participation in infrastructure planning, monitoring, and maintenance.

Structure and Roles of the Integrated Wastewater Management Committee



6.2 Capacity Building and Institutional Strengthening

To support institutional effectiveness, the policy will prioritize:

- **Training and Development:**
 - Support specialized training for government staff, private operators, and community organizations in areas such as wastewater treatment technologies, regulatory enforcement, and monitoring.
 - Partner with regional and international organizations to access capacity-building programs and technical expertise.
- **Resource Allocation:**
 - Ensure that institutions have adequate financial, human, and technical resources to fulfill their responsibilities.

- Promote the use of modern tools and digital systems for monitoring and decision-making.
- **Technical Assistance:**
 - Facilitate access to international technical assistance for the design and implementation of wastewater management projects, including nature-based solutions and innovative treatment technologies.

6.3 Transparency, Accountability and Reporting

To promote good governance and accountability:

- **Public Reporting:**
 - Develop annual wastewater management reports, issued by the oversight body, detailing progress on policy objectives, system performance, and compliance levels.
 - Share reports with the public to foster transparency and stakeholder trust.
- **Monitoring and Evaluation:**
 - Establish clear performance indicators to track the effectiveness of wastewater systems and policy interventions.
 - Conduct biennial independent evaluations to inform policy updates and adjustments.

6.4 Legal and Regulatory Support

The institutional framework will be underpinned by strong legal and regulatory structures:

- **Legislative Updates:**
 - Update and harmonize key legislation, such as the Public Health Act (PHA) and National Conservation and Environmental Protection Act (NCEPA), to provide a robust legal basis for enforcement.
 - Introduce new regulations, where necessary, to address emerging challenges and pollutants.
- **Compliance Mechanisms:**
 - Strengthen enforcement mechanisms to ensure compliance with wastewater standards and permit conditions.
 - Implement a tiered penalty system to address violations and encourage sustainable practices.

7.0 Implementation Strategy

A 10-year strategy and action plan should be developed to ensure the transformation of the policy's vision into tangible outcomes, guided by the priority areas identified in Section 5. A phased implementation approach should be adopted to ensure steady progress while maintaining alignment with overarching policy objectives.

Phase 1 (Year 1-3): Laying the Foundation

The initial phase focuses on establishing the foundational elements required to support long-term success. Regulatory frameworks and institutional structures will be strengthened to provide clarity and direction, while capacity-building efforts will ensure the necessary technical and operational expertise is in place. Early investments in pilot projects will demonstrate the feasibility of innovative approaches, particularly decentralized and nature-based solutions, setting the stage for broader adoption. During this phase, strong emphasis will also be placed on stakeholder engagement, fostering trust and collaboration among communities, government, and private sector partners.

Phase 2 (Year 4-7): Expanding Systems and Building Resilience

Building on the groundwork laid in Phase 1, the second phase will focus on scaling up infrastructure development and addressing gaps in service provision, particularly in underserved rural and peri-urban areas. Modernized wastewater systems will be designed with climate resilience in mind, ensuring their capacity to withstand the impacts of extreme weather and rising sea levels. Public engagement will be intensified to promote sustainable practices and support for wastewater reuse initiatives, addressing societal and cultural resistance. The integration of wastewater management into broader water resource and climate adaptation plans will further enhance resilience and sustainability.

Phase 3 (Year 8-10): Optimizing Performance and Ensuring Sustainability

In the final phase, the focus will shift to optimizing the systems and processes developed during the earlier stages. This includes embedding monitoring and evaluation practices to ensure wastewater systems meet established standards and policy objectives. Data-driven decision-making will become a cornerstone of operations, enabling the identification of areas for improvement and the allocation of resources to achieve maximum impact. Sustainability will be prioritized, with efforts to secure long-term financing, integrate renewable energy solutions, and strengthen cost-recovery mechanisms. This phase will culminate in the consolidation of gains, ensuring that the wastewater management system remains resilient, equitable, and capable of adapting to future challenges.

Throughout the 10-year implementation period, the strategy will be periodically reviewed and updated to reflect new knowledge, technologies, and changing circumstances. These evaluations will ensure alignment with the policy's guiding principles and priority areas,

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enabling sustained progress toward achieving universal access to sanitation, environmental protection, and climate resilience.

8.0 Annex – Review of common wastewater management components and themes across the Caribbean

Analyzing the wastewater management policy documents for the English-speaking Caribbean countries reveals several common components and themes, emphasizing sustainability, public health, environmental protection, and climate resilience. The OECS Model Water Policy was also reviewed and strongly influenced the drafting of this policy.

1. Policy Objectives

- **Universal Access to Sanitation:** Providing equitable access to improved sanitation and wastewater services to all citizens.
- **Water Security:** Ensuring the availability of water resources through sustainable practices, including the reuse of treated wastewater.
- **Environmental Protection:** Minimizing the impact of untreated wastewater on coastal and freshwater ecosystems.
- **Public Health:** Safeguarding health by reducing waterborne diseases associated with untreated wastewater.

2. Regulatory and Institutional Framework

- **National Regulations and Standards:** Establishing clear standards for wastewater treatment and disposal, often in alignment with international protocols such as the Cartagena Convention and its Land-Based Sources (LBS) Protocol.
- **Institutional Coordination:** Defining roles and responsibilities among agencies such as water utilities, environmental agencies, and health departments to ensure integrated management.
- **Monitoring and Compliance:** Developing mechanisms to monitor wastewater treatment facilities and enforce compliance with environmental laws.

3. Wastewater Reuse

- **Alternative Water Sources:** Promoting the use of treated wastewater for irrigation, industrial processes, and aquifer recharge to reduce dependency on freshwater resources.
- **Public Acceptance:** Launching education campaigns to build trust in the safety and benefits of reusing treated wastewater.

4. Infrastructure Development

- **Modernizing Treatment Facilities:** Upgrading existing infrastructure to meet contemporary standards for secondary or tertiary treatment.
- **Expanding Coverage:** Constructing new wastewater treatment plants to cover underserved areas, particularly rural and peri-urban communities.
- **Decentralized Systems:** Supporting community-based and small-scale treatment solutions in areas where centralized infrastructure is not feasible.

5. Climate Resilience and Adaptation

- **Integration with Climate Action Plans:** Addressing the vulnerabilities of wastewater systems to extreme weather events and climate change.
- **Sustainable Technologies:** Encouraging the adoption of energy-efficient and low-carbon wastewater treatment technologies.

6. Stakeholder Engagement

- **Community Involvement:** Encouraging local participation in planning, implementation, and monitoring of wastewater projects.
- **Private Sector Participation:** Leveraging public-private partnerships (PPPs) to enhance investment in wastewater infrastructure and services.

7. Education and Public Awareness

- **Behavioral Change:** Promoting proper sanitation practices and the importance of wastewater management.
- **Capacity Building:** Training professionals and local communities on innovative wastewater treatment and management approaches.

8. Funding and Financing Mechanisms

- **Government Budget Allocation:** Committing national resources to wastewater management.
- **International Funding:** Securing grants and loans from global entities such as the Global Environment Facility (GEF) and the Green Climate Fund (GCF).
- **Cost Recovery:** Implementing fair and transparent tariffs to ensure financial sustainability of wastewater services.

9. Research and Innovation

- **Data Collection:** Establishing robust systems for gathering data on wastewater generation, treatment, and reuse.
- **Technology Adoption:** Supporting the adoption of advanced treatment technologies, such as membrane bioreactors (MBRs) and constructed wetlands.
- **Regional Collaboration:** Sharing best practices and lessons learned with neighboring countries through organizations such as the Caribbean Water and Wastewater Association (CWWA).

10. Alignment with Global and Regional Frameworks

- **Sustainable Development Goals (SDGs):** Aligning policies with SDG 6 (Clean Water and Sanitation) and SDG 13 (Climate Action).
- **Regional Agreements:** Complying with commitments under frameworks like the Cartagena Convention and initiatives by CARICOM and UNEP.

Key Themes Across Countries

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- **Sustainability:** Balancing environmental, social, and economic aspects of wastewater management.
- **Resilience:** Preparing wastewater systems for the impacts of climate change and natural disasters.
- **Equity:** Ensuring underserved populations have access to adequate sanitation services.
- **Integration:** Embedding wastewater management within broader water resources and environmental policies.



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