

Climate Resilient Safely Managed Sanitation Workshop Report

9-12 March 2026 | Bridgetown, Barbados

The Caribbean has a markedly underdeveloped sanitation sector that poses significant risks to health, the environment and the tourism industry upon which the local economy depends. There is a strong need to strengthen the national and regional sanitation sectors, including onsite solutions, simplified sewerage and other related approaches, and policies, institutions, regulations, financing, and data management. With the climate crisis exacerbating the situation, UNICEF, the World Bank and CDEMA co-convened a workshop to bring greater attention to the situation and develop concrete actions to address it. At the end of the workshop, the co-convenors and participants launched a 10-country Cohort of nations interested in advancing Climate Resilient Safely Managed Sanitation (CRSMS).



Figure 1 Conference Participants at the Start of the Event.

OBJECTIVES

The workshop had four objectives:

1. Raise the profile of CRSMS in the region as a critical solution to environmental degradation, climate shocks, public health impacts, and vulnerabilities to the tourism industry.
2. Understand the specific regional context, including climate shocks, geology affecting sanitation design and operation, sanitation solutions, and the enabling environment.
3. Share regional and global experiences, for the purposes of knowledge exchange.
4. Launch a 10-country 'CRSMS Cohort' to advance climate resilient and safely managed sanitation in the region.

CONTEXT

- *The Caribbean sanitation sector has opportunities for rapid improvement:* Around 80% of wastewater in the region enters the sea untreated, potentially leading to significant environmental and public health implications, negative impacts on the tourism industry (for many islands, tourism produces the vast majority of their GDP). Untreated, or inappropriately treated, wastewater and septage risk causing disease outbreaks in tourist and other areas, as well as damaging important marine environment attractions ecosystems such as coral reefs and seagrass beds. Additionally, important barriers to climate shocks (hurricanes, storm surge, sea level rise) can be negatively impacted by the discharge of inadequately treated wastewater.
- *Basic sanitation coverage is high but insufficient:* the most common type of sanitation in the region is pit latrines (often called ‘suckwells’ or identified as ‘septic tanks’). These discharge untreated waste into the environment via fissures in the coral or volcanic substrate. Many islands have limited sewerage networks and little or no wastewater treatment. There is an opportunity to apply an island-wide approach to sanitation that utilises the appropriate service level to the appropriate context.
- *The enabling environment is nascent:* many countries report insufficient sanitation policies, strategies, master plans, regulations, monitoring, evaluation, and financing, as well as limited representation of sanitation in national climate policies. Responsibility for sanitation is highly fragmented, with inadequate coordination or authority given to lead agencies and with significant capacity constraints in the various sector institutions.
- *High level support:* Despite the limitations, the sanitation and climate sectors have potential high-level support from the Barbados Prime Minister, HE Mia Mottely. PM Mottely has prioritized reducing methane emissions as a global priority¹, and recognizes the importance of sanitation in ensuring a viable tourism industry.

ACTIVITIES

As outlined in Annex 2: Simplified Agenda, over the course of the four-day workshop the 50+ participants learned the principles of CRSMS. The concepts were grounded in case studies from Jamaica in the aftermath of Hurricane Melissa and a proposed condominal sewerage intervention in Barbados, as well as a field trip to several Bridgetown sanitation sites. They were trained on tools, such as the sanitation flow diagram and climate risk assessments and climate financing opportunities. Additionally, they learned about the critical role of policies, institutions, regulations and financing for sustainable sanitation service provision. Throughout the workshop, they participated in country-focused group work on the state of sanitation in their country, current relevant policies, institutions, regulations, and financing needs and opportunities. At the end of the workshop, participants developed country sanitation funding maps and country programs (which accompany this report as Annex 4) and each country team

¹ Sanitation is a significant methane emitter from stagnant septic tanks and low-functioning wastewater treatment systems

presented them to a panel of financiers who provided on-the-spot feedback for potential incorporation.



Figure 2 Visit to Bridgetown Wastewater Treatment Plant

RESULTS

As part of the country program development process, representatives self-assessed their country against five key pillars. Table 1 summarizes the self-assessments²:

Table 1 Self-Assessment of Country Progress

Country	Pillar				
	1. Policy, Institutions, Regulations, & institutional capacities	2. Financing & investment pathways	3. Diversified Infrastructure & inclusive service delivery	4. Climate, Environmental & Social Impact Alignment	5. Information & Monitoring
Antigua & Barbuda	RED	RED	RED	RED	RED
Barbados	YELLOW	YELLOW	YELLOW	RED	YELLOW
Belize	GREEN	YELLOW	YELLOW	RED	RED
Dominica	RED	RED	RED	RED	RED
Grenada	YELLOW	RED	RED	YELLOW	YELLOW
Jamaica	GREEN	YELLOW	YELLOW	GREEN	YELLOW
St. Kitts & Nevis	YELLOW	YELLOW	RED	GREEN	YELLOW
St. Lucia	YELLOW	RED	YELLOW	YELLOW	YELLOW
St. Vincent & Grenadines	GREEN	RED	YELLOW	GREEN	YELLOW
Average	YELLOW	RED	YELLOW	YELLOW	YELLOW

Key:

RED: Early Stage → Limited policies, investments or systems in place

YELLOW: Progressing → Some initiatives exists but important gaps remain

GREEN: Advanced → Strong progress in this area, with key elements already in place

² Note that Trinidad and Tobago representatives asked for their report to be excluded at this time.

Regionally there is a strong alignment on the sector vision: All countries aim for universal, climate-resilient sanitation access, driven by public health, environmental protection, and economic resilience (especially tourism). However, system-wide gaps persist with fragmented systems and uneven progress across the five CRSMS pillars. Additionally, there are significant investment needs, with capital requirements ranging from tens to hundreds of millions of USD, especially for wastewater treatment plants, sewer networks, and fecal sludge management. Also, the plans showed a consistent need for funding assessments for supporting enabling environment improvements (e.g., policy, institutions, regulations, data, capacity building, etc.). Nonetheless, the plans showed a growing understanding of the need to improve onsite sanitation systems and services in recognition that conventional sewerage is not a practical immediate solution for all contexts.

Common challenges across countries

include: (i) **financing** (key issues include weak tariffs and cost recovery, limited national budgets, lack of bankable projects, and a strong interest in blended finance, climate funds, and PPPs); (ii) **institutional fragmentation & weak governance** (key issues include multiple agencies with unclear roles and poor coordination, lack of regulatory enforcement and national sanitation policies, and a strong interest in clear governance frameworks, stronger regulatory bodies, and capacity building); (iii) **infrastructure deficits** (key issues include limited WWTPs with septage co-treatment capabilities, limited conventional sewer network coverage, heavy reliance on onsite systems (e.g., suckwells, ‘septic tanks’, pit latrines), and a strong interest in improving infrastructure and service delivery); (iv) limited alignment on **climate resilience** (key issues include infrastructure not designed for climate shocks, limited climate risk assessments, and a strong interest in flood-proof systems, nature-based solutions, water reuse); (v) **weak data, monitoring, and information systems** (key issues include fragmented data across agencies, data are not digitized or shared, and a strong interest in national MIS, GIS systems and performance tracking); and (vi) **gaps in equity and inclusion** (key issues include lack of access to CRSMS for vulnerable and rural populations who rely on unsafe sanitation and a strong interest in affordability and social inclusion).

While there is variability country to country on **priority actions**, some common steps include:

- **Short-term**
 - Develop/upgrade national sanitation policies and master plans
 - Conduct:
 - Baseline assessments
 - Climate risk analyses
 - Establish coordination platforms
 - Build project pipelines for funding

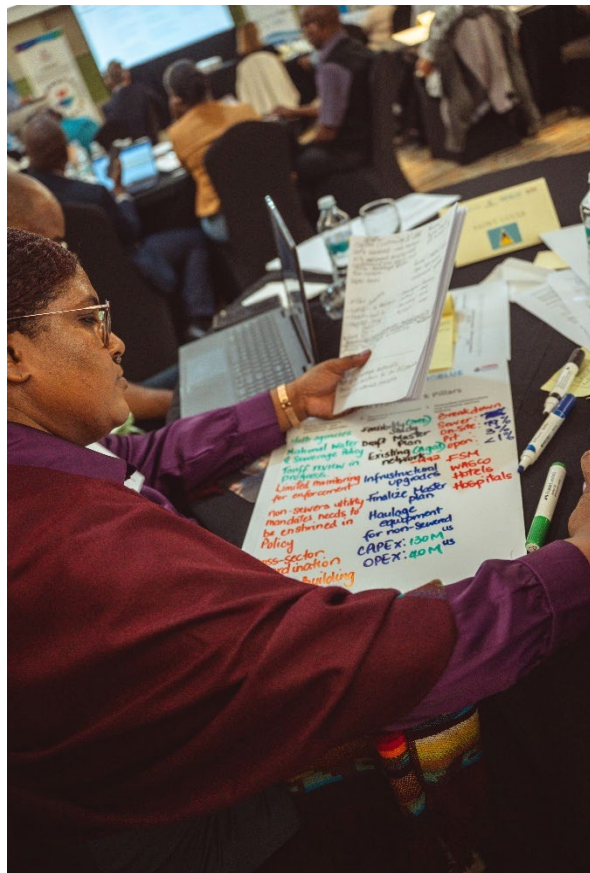


Figure 3 Working on the Country Programs

- **Medium-term**
 - Strengthen:
 - Institutional capacity
 - Regulatory enforcement
 - Launch:
 - Pilot infrastructure (FSM, decentralized systems)
 - Private sector engagement
- **Long-term (3+ years)**
 - Large-scale investments in:
 - Sewer systems (conventional and simplified/condominial)
 - WWTPs
 - National FSM systems
 - Full service-chain approach (containment → transport → treatment → reuse)

The CRSMS Shark Tank

At the end of the workshop, participants presented their country roadmaps to “sharks” – financiers representing a range of funders:

- Franz Rojas, CAF
- Sara-Jade Govia, CDB
- Bapon Fakhruddin, GCF
- Sean Penrith, Gordian Knot Strategies
- Kambiri Cox, IADB
- Louis Boorstin, Osprey Foundation
- Ann Thomas, UNICEF
- Amelia Wenger, WCS
- Lilian Pena Weiss, World Bank
- Ana Cecilia Escalera, World Bank
- Stacey Nyandiko, Xylem

Each country had 10 minutes to present their program, and then a panel of three to four sharks provided on-the-spot feedback to presenters, helping them refine and structure their programs to make them more attractive to funders.

Feedback from the financiers fell into the following three buckets:

1. Clearly delineate between climate and development projects: the Caribbean is facing both climate shocks and institutional neglect of the sanitation sector. When developing programs for funders, it is critical to define either a) what is the climate angle/climate rationale/climate science basis that would make it appropriate for climate financing and/or b) what is the development angle that would make it appropriate for development finance.
2. Invest in understanding the business case first: when seeking impact funding, it is important to identify the business proposition, and so the countries should not delay in articulating when the related financial model for proposed interventions will be developed.
3. Don't forget to include finance for non-infrastructure costs: while infrastructure may be the largest costs, financing for policy reform, institutional strengthening, regulation development and enforcement, data systems, and securing funds can be significant and may be difficult to secure. Developing a GCF proposal can cost US\$1 million, and should be planned for in a national strategy.

NEXT STEPS

The Cohort: The workshop concluded with the launch of a CRSMS Cohort – the 10 Caribbean countries interested in advancing CRSMS in their respective countries. UNICEF and the World Bank will provide ongoing, mutually agreed upon, support to the countries to help them develop and secure funding for their programs. The Cohort will meet virtually at a to-be-determined schedule and in person at the CWWA conference in October 2026. Participants agreed that the Cohort’s core principles are:



Figure 4 Kambiri Cox (IADB) and Sara-Jade Govia (CDB) providing feedback to country programs

discretion in sharing information (i.e., what people share in the Cohort stays in the Cohort), transparency in describing the reality of country’s respective sanitation situation (i.e., there is no value in hiding poor sanitation practices), leveraging each other’s strengths (i.e., identifying and sharing regional solutions), and active participation (i.e., please bring and share your best thinking to the partnership). The Cohort members will be supported by staff from UNICEF and the World Bank as indicated in the table below:

Country	Focal Point
1. Antigua and Barbuda	Thomas, Ann
2. Barbados	Adu-Wusu, Gabriel
3. Belize	Oladeji, Olusola
4. Dominica	Thomas, Ann
5. Grenada	Escalera, Ana Cecilia
6. Jamaica	Escalera, Ana Cecilia
7. St. Kitts & Nevis	Narracott, Andy
8. St. Lucia	Escalera, Ana Cecilia
9. St. Vincent & Grenadines	Adu-Wusu, Gabriel
10. Trinidad and Tobago	Narracott, Andy

Technical Assistance: Following the workshop, the participants plan to meet with their sector stakeholders, share the findings from the workshop, discuss their 6-month plans, further articulate priority areas and identify technical assistance needs. Within two months, the co-convenors will hold a virtual meeting to discuss the in-country reactions to the plans, and review an initial list of TA requests from each country. Moving forward, UNICEF and the World Bank will work with countries to **prioritize and sequence support**, focusing on areas where regional collaboration and targeted TA can have the greatest impact. Initial TA needs identified during the workshop include:

- Facilitating knowledge exchanges

- Identifying shared regional resources/creating a regional knowledge hub
- Improving data systems
- Engineering support on sanitation service design
- Training on adaptation and mitigation approaches
- Project development
- Baseline assessments
- Fundraising
- Capacity building

Regional Initiatives: Some Cohort countries may benefit from the World Bank’s Caribbean Water Security Regional Program. As part of this program, a regional Caribbean Water Center of Excellence (CWCoE), implemented in partnership with the Caribbean Community Climate Change Centre (CCCCC) and other regional partners, will support countries in advancing priority reforms and investments across utility performance and service delivery, pollution management, and long-term water security. The CWCoE will serve as a platform for technical assistance, regional knowledge exchange, the development of bankable initiatives and support countries in exploring relevant financing opportunities, while facilitating coordination with development partners.

Additionally, the CCCCC has deep expertise in accessing GCF financing, and is available as a resource for interested countries.

Events: Over the next several months there are a number of regional and global events where the Cohort can meet and/or showcase the initiatives. Events include:

- LatinoSan 2026: Punta Cana, Dominican Republic (2 – 4 June 2026)
- World Water Week in Stockholm: Stockholm, Sweden (23 – 27 August 2026)
- CWWA 2026: Grenada (13-15 October 2026)
- Water and Health Conference, Chapel Hill, North Carolina, USA (October 26–30, 2026)
- International Water Resources Association (IWRA) - 2nd Islands Water Congress: Montego Bay, Jamaica (9 - 11 December 2026)

ANNEX 1: PARTICIPANTS

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ANNEX 2: SIMPLIFIED AGENDA

Session	Speaker
Day 1 Objective: orient participants in the need for CRS and ground them in fundamentals of SMS, CRS, and climate risk.	
Welcome	Nat Paynter (UNICEF)
Opening remarks	Dignitaries from Government of Barbados, World Bank, UNICEF, & CDEMA
Context: Why are we here talking about sanitation, climate, and marine ecosystems	Ann Thomas (UNICEF) & Lilian Pena Weiss (World Bank)
Case Study: Hurricane Melissa	Gabriel Adu-Wusu (UNICEF)
Block 1: Foundations on safely managed sanitation (SMS) and climate resilient sanitation (CRS)	
Introduction to SMS and the importance of a 'Source-to-Sea' approach for sustainable sanitation service provision in the Caribbean context.	Andy Narracott (UNICEF) & Martin Gambrill (World Bank)
Group Exercise: Sanitation Flow Diagram	
Introduction to CRS	Ann Thomas
Group Exercise	Nat Paynter
Gallery walk	All
Wrap up and prep for Day 2	Clive Anthony Murray (UNICEF)
Day 2 Objective: Ground participants in SMS and CRS solutions	
Field visit - on site sanitation, sewerage, urban, rural or school	
Field trip debrief	Martin Gambrill
Recap of Day 1, Plan for Day 2	Tristan Ward (UNICEF)
CRS Solutions: What works for adaptation and mitigation	Martin Gambrill
CRS Case study: Condominium	Leonardo Nazareth
Panel Discussion	Martin Gambrill
Day 3 Objective: Provide participants with an understanding of PIRF and give them practical experience in developing a climate financing note for GCF	
Recap of Day 2, Plan for Day 3	Clive Anthony Murray
Risk Planning and group work	Andy Narracott
Block 2: Intro to policy, institutional, regulatory and financing (PIRF) frameworks	
Introduction to PIRF framework for sanitation	Andy Narracott
Financing, investment models, and credit worthiness	Lilian Pena Weiss
Sanitation and Policies	Andy Narracott
Group Work: Sanitation in your NDCs; climate in your sanitation policies	Nat Paynter
Institutions & Regulations	Martin Gambrill
Group Work: Institutional Landscape & Sector Responsibilities	Martin Gambrill
Plenary Discussion: Institutional Landscape & Sector Responsibilities	Martin Gambrill
Developing a 'sanitation funding map'	Martin Gambrill
Group Work: Developing a 'sanitation funding map'	Martin Gambrill
Practical exercise	Nat Paynter
Case study - GCF financing	CCCCCs
Wrap up and prep for Day 4	Tristan Ward
Day 4 Objective: Support participants in developing practical plans and have an opportunity to pitch their plans to funders.	
Recap of Day 3, Plan for Day 4	Olusola Oladeji
Block 3: Developing a vision for CRSMS	
Explanation of the final task for developing a country-wide CRSMS program	Cecilia Rodriguez
Group work: polishing the CRSMS program	Cecilia Rodriguez
Prep for Shark Tank	Cecilia Rodriguez
CRS Shark Tank	Nat Paynter
Wrap-up and review of the week	Ann Thomas
Closing remarks	Cecilia Rodriguez

ANNEX 3: PARTICIPANT FEEDBACK

The following report summarizes participant feedback:

Please indicate what type of organization you represent (e.g., country representative, regional partner, development agency):		
On a scale of 1 – 5 (1 being the lowest, 5 being the highest), please rate:		
Your overall assessment of the event		4.6/5
Your satisfaction with organization and logistics		4.5/5
Your satisfaction with the speakers		4.7/5
Your satisfaction with the choice and quality of sessions		4.5/5
To what extent did the workshop meet your expectations and will help you achieve your objectives?		4.6/5
What is your biggest take-away from this workshop (e.g. lesson learned, resolution, idea...)?	<ul style="list-style-type: none"> – Value of cross-country learning and exchange – Concrete examples and case studies were highly appreciated – Stronger understanding of practical implementation (not just theory) – Exposure to new tools, frameworks, or approaches 	
How do you think the workshop could have been made more effective?	<ul style="list-style-type: none"> – More time for discussion / interaction – More concrete, real-world examples – Greater depth in fewer topics (less breadth) – Stronger facilitation of participation (especially from all regions) 	
What follow-up activity would be useful to you?	<ul style="list-style-type: none"> – Strong appreciation for the overall quality and organization – Requests for: <ul style="list-style-type: none"> ○ Follow-up engagement or continuity ○ More inclusive participation formats ○ Clearer links to implementation or next steps 	