

CREW's Lines

Newsletter of the Caribbean Regional Fund for Wastewater Management

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GEF CREW puts the Wastewater Challenge to CWWA in 2013

The 22nd Annual Caribbean Water and Wastewater Association Conference and Exhibition took place 6 – 11 October 2013 at the Hilton Barbados Resort, Needham’s Point, Barbados under the theme: “Water and Waste Management in the Caribbean: Cooperation for Action.” The GEF CREW Project was one of the main partners, and participated in the exhibition and the technical sessions as well as provided significant support to the 9th High Level Session of Ministers (HLS).

The Exhibit

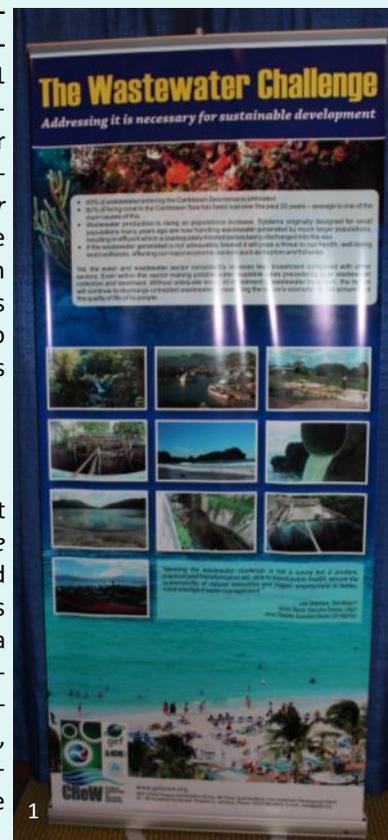
The GEF CREW Project exhibit featured a series of posters titled “The Wastewater Challenge” which explored the issues and the way that the Project is addressing them. It was supported by a number of information materials. Following the official opening of the Exhibition on the morning of 8th October, booths were open to visitors for the remainder of the Conference. Visitors were



John Mwanza, Ag. GM, BWA, speaks at Exhibition Opening



1-6:Featuring the CREW Exhibit



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Christopher Corbin, UNEP CAR RCU, makes feature presentation, Plenary



Marlon Daniel, Pilot Coordinator, Guyana, presents.



Rensforde Joseph, Guyana PMU, asks a question during session



Chris Corbin is interviewed by Deanzer Roberts of 'What's Up Caribbean'



Donna Sue Spencer answers questions after presenting

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Conference participants and, on the Tuesday afternoon local schools toured the exhibition.

Wastewater at CWWA in 2013

Wastewater received more attention at this year's CWWA Conference than ever before. The theme of the Opening Plenary Session on 8th October was "Wastewater Management in the Caribbean—Regional Challenges and Issues". Both feature presentations spoke to wastewater:

- "The Pollution Prevention (LBS) Protocol—Burden or Opportunity" - by Christopher Corbin.
- "Solving Wastewater Management Challenges for Caribbean Countries: Legal Planning and Administrative Tools" - by Judy Daniel.

In addition, there was a technical session dedicated to wastewater. GEF CReW was well represented through a number of presentations over three days:

- "Changing the Way We See and Treat Wastewater—Challenges and Opportunities for Change through Better Communication" by Donna Sue Spencer.
- "Sustainability of Wastewater Management in the WCR—the Relevance of Sanitation Marketing" by Marlon Daniels.
- "Mathematical Model Developed for the Regional Baseline Assessment on Wastewater Management" by Dr. Homero Silva; presented by Christopher Corbin.
- "Rainwater Harvesting for Hinterland/Rural Sanitation Improvement" by Rensforde Joseph.
- National Programmes of Action for Preventing and Reducing Pollution of the Marine Environment from Land-based Sources and Activities: Best Practices for Selected Caribbean Countries" by Sanya Wedemier-Graham.
- "GEF Projects and Water, Wastewater and Waste Management in the Caribbean—Success Factors for Implementation" by Sanya Wedemier-Graham.

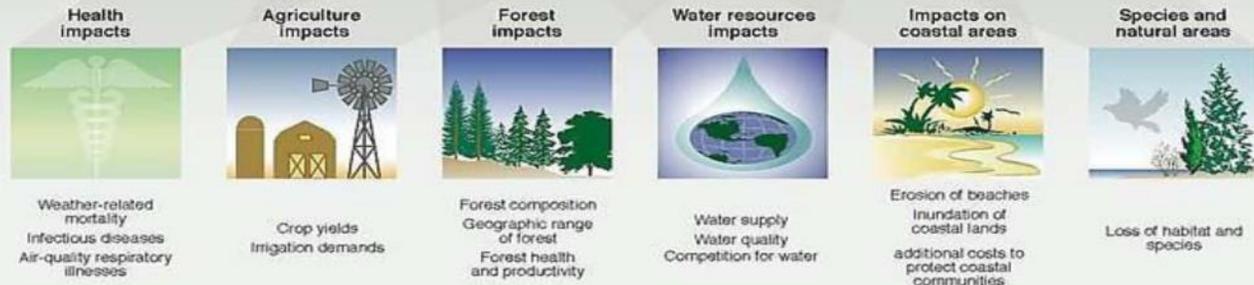
The Forum, organized by the Caribbean Water and Wastewater Association (CWWA), saw the active participation of, and was supported by, a number of partners, among them the Barbados Water Authority (BWA) and the Government of Barbados, the Pan American Health Organization (PAHO), the Caribbean Water and Sewerage Association (CAWASA) and the Global Water Partnership – Caribbean (GWP-C). Participants included regional and international partners and collaborators, industry professionals from both public and private sectors, vendors, utility leaders, Ministers of Government, Inter-regional and Multilateral agencies, academic institutions, students and water users.

President of CWWA, Lennox O'Reilly Lewis, stressed that the 2013 World Water Day theme "Cooperation for Action", also adopted as part of the Conference theme, "...emphasises the need for water and wastewater management professionals in the region to work more closely together to learn from each other's experiences."

The GEF CReW Project looks forward to collaborating with the CWWA in next year's Annual Conference and Exhibition which will be held in Saint Lucia!

WASTEWATER SERIES: Fact Sheet # 5

Impacts of Climate Change...



Wastewater and Climate Change

What is Climate Change?

Climate change is considered to be the most pervasive and truly global of all issues affecting humanity, and poses a serious threat to the environment as well as to economies and societies. Climate change is associated with the warming of the planet Earth as a result of emissions of carbon dioxide and other greenhouse gases. Humans have altered many different aspects of the climate system through economic and social development. Industrial and agricultural emissions of carbon dioxide, methane and other greenhouse gases are contributing to this warmer planet. Reducing the output of these gases, also called climate changing gases, will require a fundamental shift in manufacturing processes, agriculture and energy production.

The Wider Caribbean Region is very vulnerable to the impacts of climate change because many of the countries are low lying, thus subject to sea level rise. Also many of their resources and economic strongholds are subjected to climate variability, for example, tourism, agriculture and freshwater resources.

Climate change leads to:

- an increase in global surface temperature
- more intense storms and hurricanes
- greater weather variability leading to both increased rainfall and increased drought
- sea level rise
- an increase in sea temperatures which could lead to coral bleaching
- greater incidence of vector-borne diseases

As a useful response to the impacts of climate change, we need to build resilience in ecosystems and a part of this response is improving wastewater management.

Is there a Relationship between Climate Change and Wastewater?

The relationship between wastewater and climate change can be seen from three perspectives:

- Changing climatic conditions change the volume and quality of water availability.
- Changes in climate will require adaptation, in terms of how wastewater is managed.
- Wastewater treatment emits greenhouse gases, which contribute to climate change.



9TH HIGH LEVEL SESSION MINISTERIAL FORUM

10—11 October 2013, Bridgetown, Barbados



Caribbean Ministers and senior officials with responsibility for water resources management along with representatives of GWP-C, CWWA and GEF CReW

Caribbean Ministers with responsibility for water resources management from five countries: Barbados, Anguilla, The Commonwealth of Dominica, Nevis and the Turks and Caicos Islands, and five senior ministerial/ government representatives from Saint Kitts, Grenada, Antigua and Barbuda, Guadeloupe and Belize endorsed recommendations for placing greater value on wastewater in the region and its role in the holistic management of water in Small Island Developing States (SIDS) at the 9th High Level Session (HLS) Ministerial Forum which was held in Barbados on October 10th and 11th.

The theme of this year's forum was *"Water and Sanitation and the Post-2015 Development Agenda: Addressing Wastewater Policy and Financial Challenges in the Caribbean."* UNEP's Caribbean Environment Programme, through the GEF CReW Project, again provided financial support following its initial collaboration at last year's HLS Ministerial Forum in The Bahamas. The Ministerial Forum is held annually as a joint initiative of the Global Water Partnership-Caribbean (GWP-C) and the Caribbean Water and Wastewater Association (CWWA).

Key recommendations arising out of the Declaration signed by the Ministers at the Forum were the recognition of



Victor Poyotte of CAWASA makes a point

wastewater's important cross-sectoral linkages within various sectors and that wastewater management should be regarded as a supportive service that adds value and not costs. Also significant in the Declaration was the proposal for adopting holistic approaches that prioritise Integrated Urban Water Management and treat wastewater as a resource and not a waste.

Among concerns expressed by Caribbean Ministers and senior government officials present were: achieving financial sustainability in wastewater management; the importance of wastewater management in Integrated Water Resources



Chris Corbin, UNEP CAR RCU, presents

Management (IWRM) and the impacts of climate change; the challenges climate change will pose for wastewater management in SIDS; establishing a wastewater policy agenda and associated challenges; wastewater financing; and, the ratification and implementation of the Protocol Concerning Pollution from Land-based Sources and Activities (or LBS Protocol).

Also raised during discussions was the need for establishing and enhancing regional mechanisms for agency collaboration and prioritising wastewater management at the highest policy and decision-making level, and, the value of expanding south-south cooperation and sharing of expertise and best practices.

The Forum of Ministers recognised the need to prioritise programmes, actions and investments in wastewater management in relevant sectors where the most impacts existed,

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Second Global Land-Ocean Connections Conference (GLOC-2) and the Global Water Initiative (GWI)

GEF CRew was represented by the Project Coordinator and the Technical Specialist at the Second Global Land-Ocean Connections Conference (GLOC-2) held in Montego Bay, Jamaica, October 2-4. Attended by scientists, experts, policy makers and NGOs from around the world, it made many recommendations towards the implementation of the Manila Declaration on Furthering the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA).

Discussions included the need for data, the impacts of climate change, the risks and rewards of wastewater reuse and the need to view wastewater as a resource, coordination of activities, and facilitated learning from others. Nutrients were also discussed - losses, particularly of reactive nitrogen and phosphorus, from the agricultural and sewerage systems, as the main causes of eutrophication of aquatic and marine ecosystems around the world, affecting water quality for human use and also aquatic and marine biodiversity. A number of research topics and economic assessments were proposed, as well as indicator development, awareness-raising and education, for inclusion in the future work of the Global Partnership on Nutrients Management (GPNM).

GEF CRew has joined the GWI and signaled its intention to contribute to efforts as much as possible given the resources of the Project.

For more information on the GPA see:

<http://www.gpa.unep.org/>

Cooperating to Build Capacity in Wastewater Management

GEF CRew promotes technical cooperation between the Water Center, Mexico and the University of Technology, Jamaica

In July, Project Coordinator, Denise Forrest, and Professor Nilza Smith, Dean of the Faculty of Engineering and Computing, the University of Technology (UTECH), Jamaica, conducted a joint mission to the Water Center in Monterrey, Mexico to discuss research collaboration.

Several areas of collaboration are being planned:

- A Memorandum of Understanding between UTECH and the Water Center
- The Water Center will make a series of on-line courses available to CRew's Spanish-speaking countries, including: Commercial Management; Wastewater Treatment Fundamentals; Diploma in Energy Efficiency for Water Utilities, and; Diploma in Strategic Management of Water Utilities.
- The development of on-line courses for the English-speaking countries in collaboration with UTECH.
- Demonstration of an on-site Wastewater treatment system, to be jointly funded by the Water Center with a grant from FEMSA, UTECH

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for instance in urban areas and vulnerable communities. Accepting that capital costs are likely to provide a significant impediment for the region's small and fragile economies, the need for concessional funds and grants were underscored as being essential to establish or upgrade wastewater infrastructure in the region.



Prof. Vairavamoorthy makes keynote presentation

GWP-C's keynote speaker at the Forum, Professor Kalanithy Vairavamoorthy, Director of the School of Global Sustainability of the University of South Florida and an internationally-recognised expert on urban water management, in his presentation spurred the Ministers' interest in natural wastewater systems that could be launched incrementally or combined with existing infrastructure, as providing another option that could be pursued.

The Ministers also acknowledged the need to mobilise and secure grassroots support and public awareness as a necessary condition for garnering political support for initiating wastewater policies and programmes.

According to the Honourable Troy Liburd, Minister of Works and Communications of Nevis, "Wastewater is not at the forefront of everyone's mind." He said "Information on wastewater does not trickle down to the average man; the challenge is to distribute this information."



Hon. Troy Liburd, Min. of Works & Communications, Nevis

- and GEF CRew.
- The possibility of technical exchanges to the wastewater treatment facility in Monterrey.
- Visits of representatives of the Water Center to UTECH and the University of the West Indies, Mona, in the near future.

A formal agreement between UNEP and the Water Center is expected



A First for the Caribbean —The 7th GEF Biennial International Waters Conference

The 7th GEF Biennial International Waters Conference took place 26 – 31 October 2013 at the Hilton Barbados Resort, Needham's Point, Barbados under the theme: *“Economic Valuation as a Tool to Bridge the Science-Policy Gap.”* The Conference's main objective was to facilitate portfolio-wide learning and experience sharing. The theme was meant to focus on the usage of economic valuation as a means to translate project outcomes into policy. This was the first IW Conference to be held in the region and presented a good opportunity to engage in peer to peer discussions, share project experiences and expand professional networks.

The Pre-Conference Workshop was attended by both Denise Forrest and Christopher Corbin. Best practices identified will be invaluable for the future work of the GEF CREW Project.

Participants included GEF IW portfolio managers and staff, agency staff and partners, among them the Government of Barbados which co-hosted this Conference. The entire GEF CREW Project Coordination Group attended, networking with IW Project Managers, project counterparts, colleagues in other agencies including Executing and Implementing Agencies for IW projects globally. Several bilateral meetings were also held.

The GEF CREW Project Booth in the Innovation Marketplace, which ran from 28 – 31 October featured a series of five large posters titled *“The Wastewater Challenge”* which explored the issues and the way that the CREW Project is addressing them. It was supported by a number of information materials and handouts as well as promotional materials. Conference participants took the opportunity to learn about this innovative Project.

Following the Opening Ceremony in Plenary on 28th October, a panel discussion titled *“Replicating Good Management Practices from the Wider Caribbean”* took place. The discussion highlighted results and achievements of portfolio projects in the region. A series of short highlight videos, submitted by each of the projects, was shown immediately before the panel dis-



The winning exhibit, GEF Amazon Project



GEF CREW Project Coordinator (r), gives Regional Project Coordinator, Lake Victoria Basin Commission (l), a gift



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How does Wastewater Affect Climate Change?

- Although a relatively small contributor to global greenhouse gas emissions, wastewater and its management have a growing impact.
- Wastewater treatment emits three main greenhouse gases: carbon dioxide, methane and nitrous oxide. Methane and nitrous oxide are much more powerful greenhouse gases than carbon dioxide.
- Wastewater accounts for 9% of the estimated global anthropogenic methane emissions.
- Estimates of global nitrous oxide emissions from wastewater are incomplete.
- Wastewater-related emissions of methane and nitrous oxide could rise by 50% and 25% respectively between 1990 and 2020.

Greenhouse Gas	Global Warming Potential
Carbon dioxide (CO ₂)	1
Methane (CH ₄)	25
Nitrous oxide (N ₂ O)	298

Therefore, it is important to research and implement alternatives to current wastewater treatment to minimize the production and/or release of greenhouse gases as well as energy consumption (thus further reducing carbon dioxide emissions).

How does Climate Change Affect Wastewater Management?

- Existing wastewater treatment systems, whether centralized or decentralized, are likely to be less effective in providing adequate levels of treatment under climate change.
- Increases in ambient temperature as well as in the number of warm and extremely hot days may lead to warmer soil and water temperatures, lowering the effectiveness of decentralized sewage systems such as septic tanks, cesspits and constructed wetlands.
- Increasing temperature will lead to evaporation and increased sedimentation, which compromises water quality.
- More droughts and extreme rainfall events have impacts on non-existent or old, inadequate wastewater treatment facilities, highlighting the need for infrastructure that can cope with extreme surges of wastewater or reduction in water flow.
- Communities in riverbank settlements are affected during heavy rainfall when improper water closets are destroyed and waste is released directly into rivers and streams used by residents for bathing and drinking purposes.
- Increasing incidence of heavy rainfall brought can lead to a greater presence of substances like phosphates and nitrogen in agricultural runoff in the water, which eventually leads to eutrophication.

Therefore, improvement in wastewater management and treatment is necessary to address increasing impacts from climate change. Greater levels of wastewater reuse or recycling will create a climate-independent water source that is dependable, locally controlled and generally beneficial to the environment. National water policies need to ensure that greater attention is given to wastewater management within an integrated water resources management (IWRM) framework.

This is one in a series of five fact sheets recently published by the GEF CReW Project. These describe the relationship between wastewater and different sectors. Others are: Wastewater Basics; Wastewater and Health; Wastewater and Tourism; and, Wastewater as a Resource.

Check them out on the Project web site at: <http://www.gefcrew.org/document-center/viewcategory/83>



“Wastewater Report Card”

First GEF CReW Video Documentary wins GEF IWC7 Film Festival!

The first GEF CReW documentary: “Wastewater Report Card”, an eleven-minute introduction to wastewater issues in the Caribbean and to the Project, was launched in October and subsequently entered into the 7th Biennial International Waters Conference’s Film Festival.

It was among five films shortlisted and shown on the night of 28th October and won!

See it on the project website home page: www.gefcrew.org

Eight more short documentaries will be produced by the Project. Look out for them!

Don’t forget to “Like” our Facebook page as well!

facebook@gefcrew.org

Our last quarterly of 2013 (December issue) will be distributed in January 2014

Seasons Greetings & a Happy New Year!

(Continued from page 6)

cussion began. The Project Coordinator represented the GEF CReW Project on the panel while the Communications Specialist represented the recently concluded GEF IWCAM Project.

The GEF CReW Project’s submission to the IW Film Festival, “The Wastewater Report Card”, was among five films selected by an independent panel before the conference for screening at the mini festival and won the Festival on the night of 28th October!



GEF CReW Project Background:

The CReW is a four-year project, funded by the Global Environment Facility (GEF) and implemented by the Inter-American Development Bank (IDB) and United Nations Environment Programme (UNEP). It was established in 2011 and will end in July 2015.

It aims:

- To provide sustainable financing for the wastewater sector
- To support policy and legislative reforms, and
- To foster regional dialogue and knowledge exchange amongst key stakeholders in the WCR.

There are thirteen participating countries: Antigua & Barbuda, Barbados, Belize, Costa Rica, Jamaica, Guatemala, Guyana, Honduras, Panama, Saint Lucia, Saint Vincent & the Grenadines, Suriname, and Trinidad & Tobago.

The Project Coordination Group (PCG) is based in Jamaica, at the offices of the IDB and at UNEP’s Caribbean Regional Coordinating Unit which is Secretariat to the Cartagena Convention (UNEP CAR/RCU).

Contact Donna Sue Spencer at: ds@cep.unep.org for more information or to contribute articles.

For more information contact:

Caribbean Regional Fund for Wastewater Management Project Coordination Group
6th Floor, Dyoil Building, Inter-American Development Bank

40—46 Knutsford Boulevard

Kingston 5, Jamaica, W.I.

Phone: (876) - 764—0815

E-mail: crew@iadb.org or ds@cep.unep.org