

# CReW's Lines

Newsletter of the Caribbean Regional Fund for Wastewater Management

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Figure 1: Aerial view of Placencia Peninsula  
Source: Google Maps

## Establishing Wastewater Management Systems in the Placencia Peninsula - Belize's first generation project under CReW

### Background

The Placencia Peninsula is the site of Belize's Global Environment Facility-funded Caribbean Regional Fund for Wastewater Management (GEF CReW) Project's first generation project: to establish a regional sewage collection, treatment and disposal system financed by a revolving fund. GEF CReW funds (US \$5 million) are being provided directly to the Government of Belize as a capitalization grant for the Belize Wastewater Revolving Fund (BWRF). Under the terms of the CReW grant agreement, first use of BWRF is dedicated to the Placencia project.

The Ministry of Finance (MOF) is the pilot executing agency (PEA) for the revolving fund in Belize. The

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## Innovative Financing for Wastewater Management and how it can make a difference

### Introduction – What are the costs of untreated wastewater?

The UNEP Regional Seas programme has reported that the discharge of untreated domestic wastewater is a major source of environmental pollution. Over 70% of coral reefs are affected by discharges of untreated sewage, habitats are disappearing, biodiversity is decreasing, fishing and agriculture opportunities are being lost, poor water quality is adversely affecting incomes from tourism and declines in real estate value are being experienced in the impacted areas.

Additionally, besides the negative impacts in the environment and economic sectors, inadequate management of wastewater has serious consequences for human health. Contaminated water supply increases the risk of infectious diseases. The global burden of human disease caused by sewage pollution of coastal waters has been estimated at 4 million lost man-years, every year.

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Belize Wastewater Revolving Fund (BWRF) will provide zero or below market interest loans for eligible wastewater treatment projects. As the PEA, the MOF is required to manage the revolving fund in accordance with set operational guidelines. It has also established a project management unit to manage the projects which receive financing. Eligible projects would include local wastewater projects that advance the obligations of the Cartagena Convention and are located in a watershed area that drains into Caribbean coastal waters.



Westwinds Beach, Placencia

The Placencia Peninsula, located in South-Eastern Belize, is a 24 km long strip of land between the Caribbean Sea, to the east, and the Placencia lagoon, separating it from mainland Belize, on the west. At its widest point it is a mere 50 metres wide.

This narrow strip of land is a tourist mecca. There are three main developments: Placencia Village, Seine Bight and Maya Beach, with a total population of 2,700 people. It is most densely populated in the south. Between 2000 and 2010, the population of the villages of Placencia and Seine Bight grew annually by approximately 9%. The resident population was estimated in 2011 to be about 3,375, growing to as many as 10,000 during peak visitor periods. Growth in the past ten years has been described as “explosive”, especially in the tourism sector. More hotels, resorts, condominiums and residences are being built. Wastewater treatment needs are expected to increase significantly.

## Feasibility Study

A feasibility study for this project was done by Engineers Without Borders (EWB) in 2006. A number of solutions were recommended, and agreed by Belize Water Services Limited (BWSL). These included the use of a pressurized sewer system due to the high water table, and, selection of a treatment system with a low footprint given concerns about space, ecological fragility, odours and noise.

While the feasibility study provided very valuable information on the size and scope of the peninsula-wide project, information and cost projections needed to be updated and revised. It was also determined that a phased implementation approach should be studied as well. Following development of new Terms of Reference, Halcrow was commissioned in May 2011 to: (i) revalidate and/or update the feasibility study conducted by EWB; (ii) obtain a more

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## CRew – Blending Financing, Technology and Regional Environmental Obligations

The prevention, reduction and control of Marine Pollution has historically been one of the priority areas of focus for the Global Environment Facility (GEF) International Waters (IW) Portfolio. Within the Wider Caribbean Region, over 80% of domestic wastewater enters the Caribbean Sea untreated making sewage the number one point source of marine pollution in the region. In 1999, Governments of the Wider Caribbean Region signaled their commitment to address land-based sources of marine pollution when they agreed to the Protocol on the Control of Land Based Sources of Marine Pollution (LBS Protocol). This Protocol forms part of the only legally binding regional agreement for the protection and development of the Caribbean Sea – the Cartagena Convention.

The entry into force of the LBS Protocol in 2010 commits Governments of the Wider Caribbean to make major improvements in wastewater management by introducing innovative and cost effective treatment technologies, improving policy, regulatory and institutional frameworks, and expanding access to affordable financing. Furthermore, in the absence of an international environmental agreement on pollution that would support implementation of GEF IW projects, efforts to comply with the LBS Protocol take on even greater significance.



The GEF funded CRew project is an integrated and innovative approach for reducing the negative environment and human health impacts from untreated wastewater discharges. At the regional level, it has catalyzed a unique partnership between the Inter-American Development Bank, the United Nations Environment Programme and the Secretariat for the Cartagena Convention. At the country level, project implementation will be further supported by partnerships between wastewater utilities, Ministries of Environment, Finance, Health, Education, and local communities.

The increasing demand for sustainable financing for implementing cost-effective, appropriate solutions to pollution problems including those resulting from poor wastewater management means that the CRew project offers great potential for replication, not just within the region, but globally. Implementation of the GEF CRew project is a small but notable step to safeguard human health while securing our natural resources and ensuring their continued contribution to national and regional economic development.

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Despite the established link between economic prosperity and the quality of life the wastewater sector remains significantly underfunded. Why is this so? The cost of treating wastewater can be very high and governments often have insufficient resources available for mitigating action. The cost of failure to treat wastewater is high as seen in Table 1.

**Table 1: Some Examples of the Cost of Untreated wastewater**

Source: UNEP/GCSS.VIII/INF/4, January 27, 2004

The Global Burden of Human Disease, caused by sewage pollution of coastal waters is estimated at 4 million lost 'man-years' every year, which equals an economic loss of approximately 16 billion US\$ a year.
Estimated e global impact of bathing in and eating shellfish from polluted seas at approx. US\$12–24 billion per year.
The costs of water pollution along 20 beaches of the Estoril Coast in Portugal, used by approximately one million people a year, was around 68 million USD annually.

Total spending within the water sector in developing and transition countries is currently estimated at about USD 80 billion annually. The World Summit on Sustainable Development (WSSD) estimated that an additional USD 70 billion annually is required to reach the WSSD target on sanitation within the wastewater sector.

A study of WaterAid (UK) estimated that approximately 70 per cent of the current global spending on water and sanitation is provided by the domestic public sector, 20 per cent by Official Development Assistance (ODA), and 10 per cent by the

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accurate estimate of project costs and implementation program; (iii) provide an in-depth analysis of existing risks related to technical feasibility, environmental impacts and project costs. They were also to consider: actual availability of the proposed site; ecological and environmental conditions of the proposed site, and; consistency of the treatment process with BWSL's other systems.

Capital expenditure for the whole project, assuming full treatment, was estimated to be between US\$ 6.0-9.0 million, assuming treatment using facultative and aerated lagoons with an annual operating expenditure of between US\$ 350,000-500,000.

Development and implementation of the actual treatment system is being funded through the CREW Project, with the rest of the project being financed through a US\$5 million IDB loan, guaranteed by the Government of Belize. In addition, a US \$500,000 Technical Cooperation agreement was signed between the Government of Belize and the IDB to provide the funds for the design of the collection and the treatment facility.

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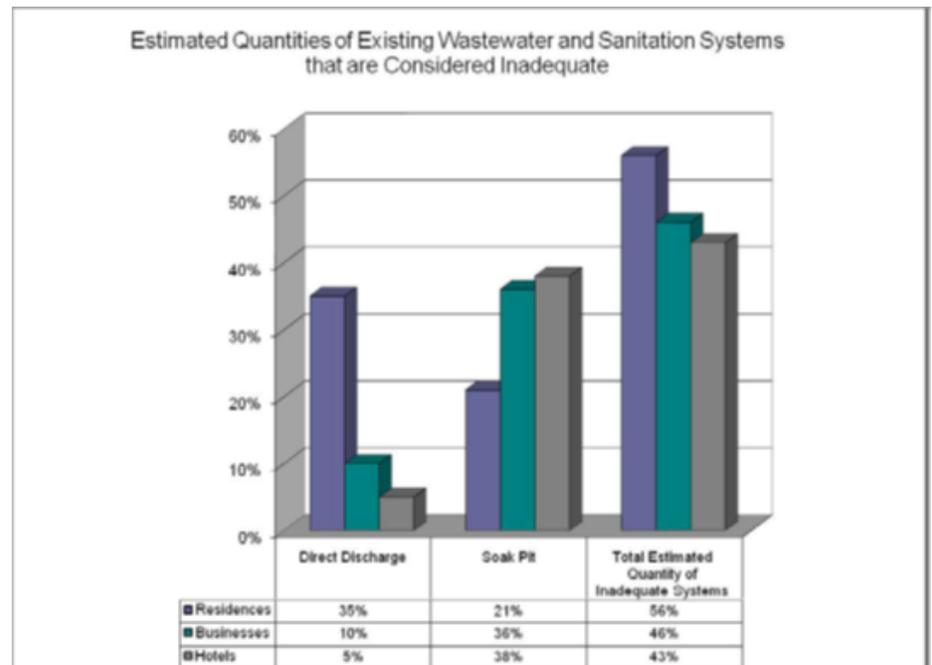


Figure 2: Percentage of Inadequate Wastewater Management Systems  
Source: Halcrow's feasibility study

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private sector ( 7 per cent from international private flows; 3 per cent from domestic private sector investments).

How then does one expand the source of financing? Are there any constraints?

### Constraints to Financing the Wastewater Sector

Several constraints could explain why the investment in the sector is relatively low. High on the list are the perceived, or real, issue of political risk and poor governance. These risks reflect the fact that political interference and unstable regulatory regimes can alter the operating environment hugely, impacting on the ability to source finance for sustainable water and wastewater projects. Other additional constraints are:

- The low priority given to environment, particularly water supply and sanitation, in public sector spending (national and local) due to competing interests with other sectors such as health and education as a result of acute scarcity and accumulated external debt burden.
- Weak revenue generation from existing environmentally related charges, as the aggregated revenue-raising capacity is usually too small to create a critical mass of resources to support significant investments.
- Centralization of financing possibilities of environmental activities, reflecting the lack of financial autonomy at the local government/municipality level and offering weak incentives to sub-national levels of government for responsible, long-term environmental management.
- Lack of accounting for costs of externality from environmental degradation such as health costs, loss of ecosystem services, tourism etc.

### Can we bridge the funding gap?

Bridging the funding gap is becoming an imperative rather than a choice. Creating effective demand for environ-

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## Present state of wastewater management in Placencia

In June 2011 Halcrow, as part of the Feasibility Study, conducted a door-to-door survey. It found that each household, hotel and business is responsible for on-site wastewater handling and disposal. There is no centralized sewage system on the Peninsula. Septic tanks with a form of soak-away are most commonly used. As much as 35% of households directly discharge into the soil, beach or lagoon. About 10% of businesses and 5% of hotels also use direct discharge as a method of disposal. Smaller resorts and hotels have septic systems or soakage pits and a few of the larger developments comply with the Department of Environment's (DoE) requirements to install and maintain packaged wastewater treatment plants.



In the absence of any tertiary level treatment, discharged effluents contain a high level of nutrients which have a negative impact upon the environments of both the Lagoon and the sea where they ultimately end up. The Peninsula is a long, narrow sand spit. As such excess nutrients pass through the sand quickly and end up in the shallow fresh water layer below ground, ultimately being flushed out to the sea and lagoon. Because filtration time is short, pathogens such as *streptococci* persist in the lagoon water in particular, creating a health hazard. The Lagoon's rich flora and fauna and important role as a nursery for many commercial fish species are also threatened by these nutrients.

Existing septic systems are inadequate as they allow pollutants

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Throughout the WCR, funding and operational challenges mean that many existing WWT facilities are in need of upgrade.



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mental financing will require the strengthening of policy and institutional frameworks to provide more credible and stable conditions for investment planning. A number of approaches have been suggested to ensure financial stability and sustainability. Two of the main suggestions are:

- Link the municipal wastewater sector to other economic sectors** - Sound and appropriate wastewater management may require substantial construction and operational investments in wastewater infrastructure and treatment facilities. Relative to the water supply sector, cost recovery in the wastewater sector is traditionally a long process. Linking wastewater management with other sectors can ensure faster cost-recovery, risk-reduction, financial stability and sustainable implementation.
- Introduce innovative financial mechanisms, including private sector involvement and public-public partnerships** - traditionally, sanitation services have been provided by public authorities. Costs for investments, operation and maintenance, however, often outstrip their capacities, as do present and future requirements for serving the un-served. Therefore more flexible, innovative and effective financial management mechanisms have to be considered, e.g. micro-financing, revolving funds, risk-sharing alternatives, municipal bonds. Public-private partnerships and public-public partnerships are important tools to assist local governments with initial financing and with on-going operations.

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to move easily between the groundwater system, the lagoon and the ocean. Placencia has high groundwater levels and highly permeable and porous soils rendering even properly designed septic systems potential health hazards.

Potable water is currently supplied by a Rudimentary Water System (RWS) which is managed by two local water boards - the Placencia Water Board and the Seine Bight Water Board. Water is pumped from a well near Mango Creek on the mainland, then piped underwater (across the lagoon) to the Peninsula System. The pipeline is vulnerable to hurricane damage e.g. Hurricane Iris in 2001. In addition there are many privately owned wells which are used for irrigation and domestic needs. Little is known about the aquifer from which the Peninsula's water supply comes. As population grows, demand for water is expected to increase significantly and improved sanitation (e.g. the introduction of water closets instead of latrines) will require more water.

The need for a wastewater management system is clear. Ideally this should be a piped sewerage system which collects all wastewater from the Peninsula and properly treats it so that it does not negatively affect the health of the population and the environment.

### Finding the right mix of Collection, Treatment and Effluent Disposal

The Peninsula is flat (no area is more than 3 metres above sea level) and has a high water table. The Southern part of the Peninsula is more developed than the Northern part, and significantly generates an estimated 94% of the current wastewater. This is a

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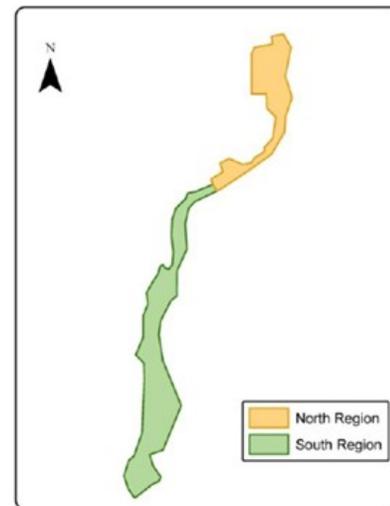


Figure 3: North and South Region  
Source Halcros's feasibility study



Placencia Lagoon

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## Are there examples of Successful Innovative Financing?

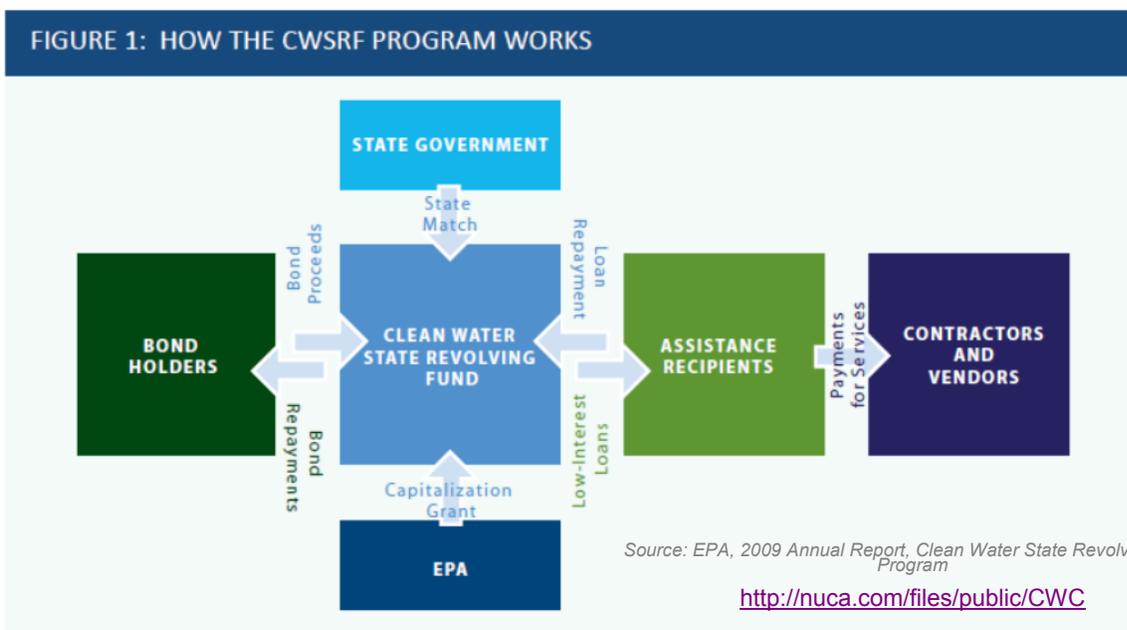
The United States has a long and successful history of funding wastewater treatment. Can we learn from them? In 1980, The Congress of the United States introduced an innovative financing mechanism -

**The Clean Water State Revolving Fund (CWSRF).** See Figure 1).

Since the first project received CWSRF financing in 1988, the program has provided over \$74 billion in assistance for eligible wastewater infrastructure, nonpoint source and estuary projects. By the end of 2009, states had entered into almost 24,700 assistance agreements. The main advantage of the CWSRF is that it provides financing at below market interest rates. As a result thousands of communities and other eligible entities have been able to upgrade and replace their wastewater treatment plants, to correct combined and sanitary sewer overflows, and to prevent contaminated runoff from entering waterways at a much lower cost than they would have incurred through conventional financing. Innovative financing works!!!

### How does it work and what are the lessons to be learnt?

Each year since 1988, the Federal Government has appropriated funds to EPA for the CWSRF programme. These



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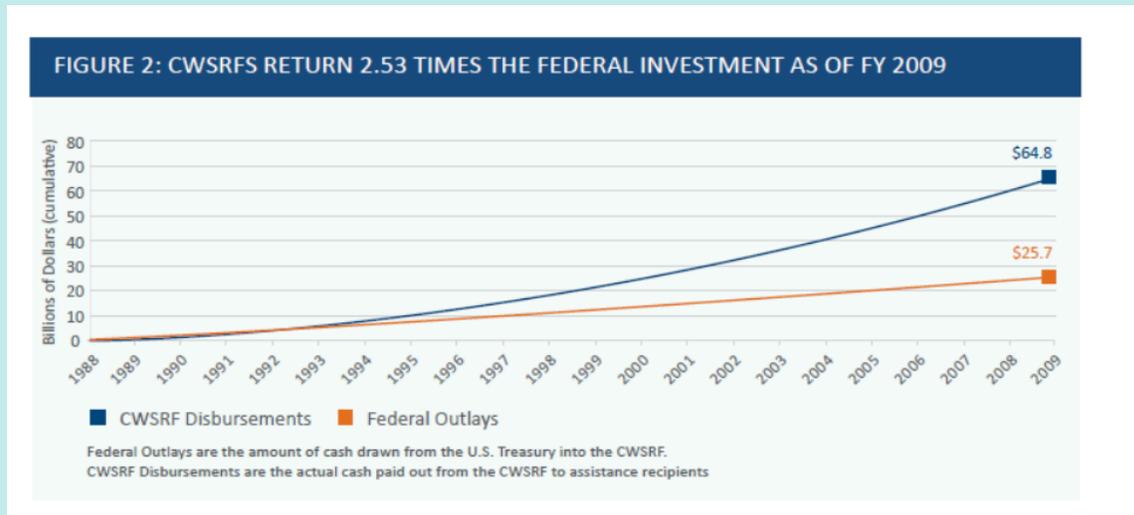
### Look out for these UPCOMING MEETINGS:

DATE	EVENT	PLACE
Sept 2012	GEF CRew Training on Revolving Funds	Belize
24 – 26 Sept 2012	GEF IW Science Conference: "Setting the International Waters Science Agenda for the Next Decade."	Bangkok, Thailand
1 – 5 Oct 2012	21 <sup>st</sup> Annual CWWA Conference & Exhibition: "Water & Waste Management in the Caribbean: Strategies and Solutions."	Nassau, The Bahamas
24 Oct 2012	First Meeting of the Contracting Parties to the Protocol Concerning Pollution from Land-Based Sources and Activities in the Wider Caribbean Region (1 <sup>st</sup> LBS COP)	Dominican Republic
25 – 27 Oct 2012	Twelfth Meeting of the Contracting Parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (12 <sup>th</sup> COP)	Dominican Republic
November 2012	2 <sup>nd</sup> Meeting of the GEF CRew Project Steering Committee	Panama

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funds are distributed to States based on a formula set in the enabling legislation. For every dollar provided by the Federal Government, the 51 participating States contribute 20 cents. Together, Federal and State governments have capitalized the CWSRF with \$32.4 billion. They provide financing to communities, homeowners, farmers and other eligible entities for wastewater treatment infrastructure, nonpoint source and estuary projects. CWSRF assistance has primarily been used to provide discounted loans and to purchase or refinance municipal debt obligations. Interest rates average approximately half of what these entities would obtain through banks or the municipal bond market.

Over the past 22 years, the Fund has been able to turn the \$32.4 billion of Federal and State capitalization into \$73.6 billion in assistance for communities and have achieved 2.5 times return. See Figure 2.



Source: EPA, 2009 Annual Report, Clean Water State Revolving Fund Program

**Key success factors have been:** Enabling legislation; lower interest rates, and; a viable strategy for growing the Fund.

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## The Green Economy: “Does it include Wastewater?”

Green economy is essentially a form of development that addresses in an holistic way the many economic and environmental challenges confronting us today. In a green economy, growth in income and employment are driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.

A May 2009 report entitled “Assessment of Wastewater Management in the Caribbean” found untreated domestic wastewater had severe economic consequences for coastal ecosystems in the Wider Caribbean Region. This created many problems including:

- Increased fish mortality and negative effects on commercial fisheries
- Declines in coral reefs estimated to cost the region up to US\$ 870 million by 2050
- Threats to human health due to elevation of pathogenic microorganisms, and
- Threats to the tourism sector.

In her presentation to the 6<sup>th</sup> Biennial Caribbean Environmental Forum 6 in Saint Kitts & Nevis in May 2012, CREW’s Project

Coordinator, Denise Forrest, looked at the links between wastewater management (WWM) and the green economy. She raised the following points for consideration:

- Current dialogue on green economy places no emphasis upon wastewater management – focus tends to be more on water and sanitation
- Wastewater is a resource that has a value although that value needs to be properly determined
- Treatment restores the value of wastewater which is a commodity
- Lack of treatment negatively impacts key economic sectors such as fisheries, health, shoreline protection (due to reef destruction), tourism and biodiversity.

She pointed out that many countries in the WCR are affected by severe water scarcity. This has a direct impact upon sustainable development. Water stress is projected to increase with water supply satisfying only 60 percent of world demand in 20 years. Food security is also dependent upon water availability. Water recovery and integrated water management could therefore become a decisive factor in reshaping national and regional food security policies.

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The principles used in this case study are applicable in other jurisdictions and certainly provide some useful lessons for the Wider Caribbean Region (WCR).

### CRew and Innovative Financing

The overall objective of the CReW program is to pilot financing mechanisms that can be used to provide sustainable financing for environmentally sound and cost-effective wastewater management. In addition, the Project is to facilitate policy discussions, regional dialogue, and knowledge exchange regarding wastewater management with the key stakeholders in the WCR.

The **expected outcomes of the CReW Project** are:

- successful implementation of the Pilot Funds (PFs) and of the first generation of projects under the PFs;
- improved access to, and testing of, appropriate wastewater management technologies to be measured through the number of wastewater systems implemented as a result of the program;
- reduced land-based pollution to watersheds and coastal waters to be measured through reduction/changes in biological oxygen demand (BOD) levels, nutrient levels and fecal coliform levels at the pilot sites;
- improved local and national capacity in support of wastewater management and subsequent reduction in land-based pollution to adjacent watersheds and coastal waters - to be measured through the number of countries ratifying the Land-Based Sources and Activities (LBS) Protocol;
- adoption of laws and regulations at the national level to facilitate compliance with the LBS Protocol; development and enactment of national plans and strategies for effective enforcement of domestic wastewater management regulations, and improved integrated coastal management (ICM) Is;
- improved stakeholder awareness on the definition of environmentally acceptable, sustainable and cost-effective wastewater management solutions, to be measured through the number of countries which have ratified and implemented the LBS Protocol;
- continuation of multi-agency partnerships catalyzing the replication of technologies used, reform implementation and innovative financing, to be measured through the amount and degree of inter-agency dialogue and data sharing, and level of knowledge and skills of government personnel with responsibility for wastewater management.

**See BOX A, pg. 9: CReW's Pilot Financial Mechanisms**

**The CReW project offers the opportunity to establish a sustainable, innovative approach to funding a sector which is critical to the WCR's economic future.**

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consideration in the design of the collection system. The location of the wastewater treatment facility means that various stakeholder interests have to be considered: the amount of land required (availability and expense of land purchase, infrastructure needed for access); who and what is located on adjacent parcels of land and their concerns; the cost of transporting sewage from the generation points to the WWTP. Four locations were considered for the construction and operation of the wastewater treatment facility: across the Lagoon from Seine Bight Village; north of the Peninsula adjacent to Ara Macao; within/adjacent to Placencia Village, and; within/adjacent to Seine Bight Village.

Treatment will be handled using facultative lagoons which, are low cost to operate and maintain as they require no electricity.

The feasibility study proposes the use of surface water discharge to disperse secondary treated effluent into the surrounding mangroves, nonetheless, a nutrient fate and transport study, taking account of the projected effluent nutrient loading allocation of the discharge at each discharge point, is currently being developed to determine the need of tertiary treatment using wetlands or whether the mangroves have enough nutrient uptake capacity to cope with all the discharge. An effluent market analysis is also being conducted to determine the feasibility of reusing treated effluent for irrigation of nearby agricultural land and a golf course.



### Evaluating alternatives (finding the right fit)

It was assumed that all facilities will be connected to the wastewater collection and treatment system. Wastewater load was calculated according to the various land-use categories and modeling was done using different / alternative wastewater collection system models. These consisted of different configurations of sewage clusters draining into pump stations built at different locations.

The option which is currently being considered is to:

- Build a collection system for the South Region, connecting as many facilities as possible within the full infrastructure areas and making it as easy as possible for facilities to connect to the

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pressure pipe system in less dense areas.

- Enact legislation which stipulates that any new structure within this area must connect to the collection system, and; any upgrade/expansion to an existing facility within the area requires connecting to the collection system.
- Build this collection and treatment system with the flexibility to integrate the North Region in the future.
- Begin the planning process for expansion into the North Region in the near term, including the option of a Public – Private Partnership with private developers.

## Conclusion

Final version of the Feasibility Study is to be received by the end of June 2012. Following this, Terms of Reference for the TC will be prepared and proposals invited.

Belize is one of the ten Contracting Parties to the LBS Protocol.

The Government of Belize has committed to making needed policy reforms as well as financial contributions. The private sector is also expected to contribute. In formulating the pilot project, extensive discussions were held with a wide range of stakeholders - the Government of Belize (GOB), town council representatives, developers and others – all of whom expect to be consulted during project planning and implementation.

The introduction of a wastewater management system for an area such as this is no easy task. There are many associated issues which can have a significant impact upon sustainability if not addressed. An adequate and safe water supply for the Peninsula, one of the concerns repeatedly voiced by citizens and planners, is one such issue. The current delivery system is near its capacity and the sustainability of the water source is not known. This has implications for the wastewater management system which is being designed.

Control and funding of the Water Boards is another issue which will also have to be dealt with by the PEA. This concern was voiced at the Project's first public consultation held on 22 March 2012.

The long-term benefits of establishing a functioning wastewater collection and treatment system for the Placencia Peninsula will be significant. While the challenges are many, careful consideration of technology and other alternatives as well as thoughtful consultation with the many stakeholders should result in a wastewater management system which can be modified and expanded to meet growing needs in the future.

This first generation pilot project, in addition to providing much needed wastewater treatment and associated improvements in the quality of life, is meant to demonstrate how a revolving wastewater fund can work. Its success will also depend upon the extent to which the Government of Belize remains committed to fostering the revolving fund and is able to reform policy, legislation and the relevant institutions in support of it. The PEA must share the lessons learned in its implementation of this pilot project with the aim of sustaining improvements and replicating the successes elsewhere.

## BOX A:

### CRew's Pilot Financial Mechanisms?

The four financing mechanisms and their respective first generation projects are summarized below:

**Credit Enhancement Facility in Jamaica – US \$3 million:** Credit enhancement support for local commercial bank financing of wastewater projects in Jamaica. CReW funds will be placed in a reserve account and pledged to local lenders as collateral for the financing of US \$15 million in initial wastewater projects. Total financing is expected to grow to over US \$300 million. Eleven projects will be the first generation to be implemented from this guarantee, involving either the rehabilitation of an existing wastewater facility or the construction of a new wastewater facility.

Under the proposed financing mechanism, US\$ 3 million in CReW funds are provided to the National Water Commission (NWC) as an endowment/grant to be placed in a reserve account and pledged as collateral for commercial bank financing of NWC wastewater projects. The source of payment and collateral for the commercial bank loans would be annual K-factor revenues.

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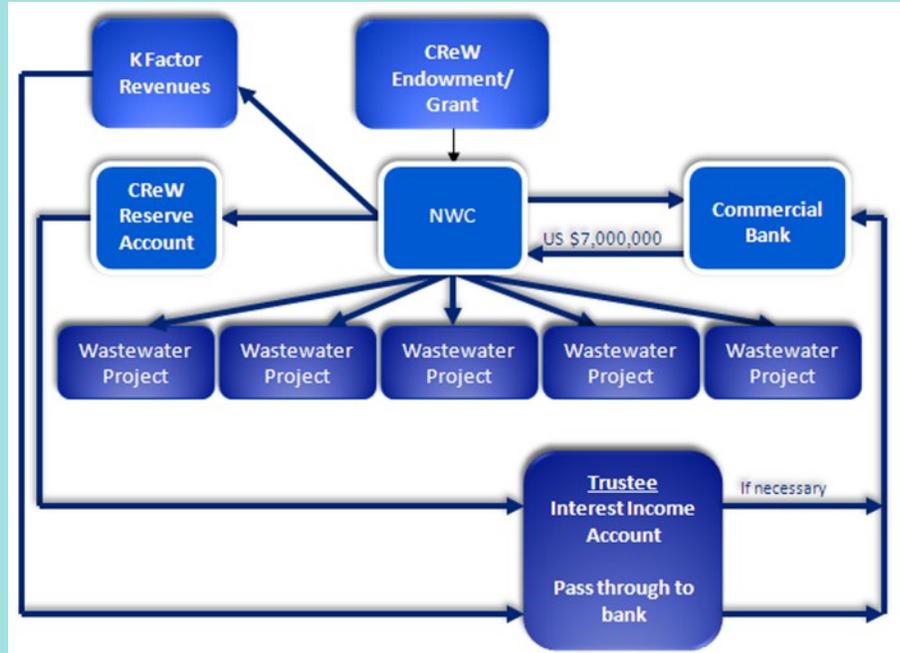
### The 6th Biennial Caribbean Environmental Forum and Exhibition (CEF 6),

21–25 May 2012, St. Kitts & Nevis

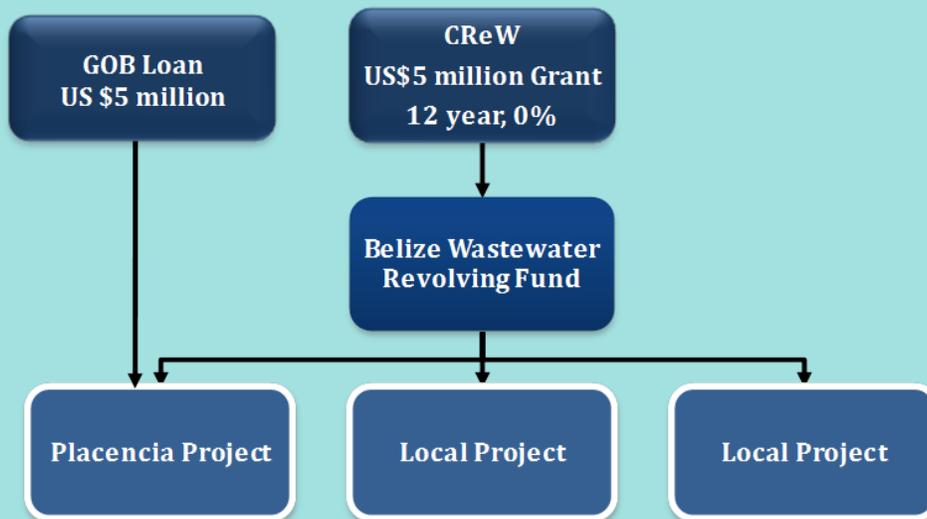
Caribbean leaders from various sectors came together to discuss “The Green Economy: Challenges and Opportunities in Managing Health, Water, Waste, Land, Energy, Climate Change and Natural Resources” at CEF 6. “ Left to right: Dr. the Hon. James Fletcher, St. Lucia’s Minister of Sustainable Development; Dr. Didicus Jules, Registrar of the Caribbean Examinations Council, Dr. the Hon. Leslie Ramsammy, Guyana’s Minister of Agriculture, Patricia Aquino, Executive Director of the Caribbean Environmental Health Institute, and Christopher Corbin, AMEP Programme Officer, UNEP’s Caribbean Regional Coordinating Unit.

CRew participated in CEF 6. See pg. 11

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**National Wastewater Revolving Fund in Belize – US \$5 million:** Creation of the Belize Wastewater Revolving Fund (BWRF) provides zero or below market interest rate loans for eligible wastewater treatment projects in Belize. The first project to be financed under the BWRF would be a regional, inter-municipal wastewater treatment system for the Placencia Peninsula. The CReW funds are provided directly to the Government of Belize as a capitalization grant for the BWRF.



**National Wastewater Revolving Fund in Trinidad and Tobago – US \$2 million:** The National Wastewater Revolving Fund will be created to support the efforts of the Government of Trinidad and Tobago to address the urgent issues confronting the wastewater sector. Under this financing mechanism, a revolving fund would be established offering zero-interest loans for private sector stakeholders (including local hotel owners and commercial developers) towards installation of wastewater treatment facilities, either on-site or at joint plants if establishments are within proximity of each other.

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## The State of Wastewater Management in the Region - introducing CReW's Regional Baseline Assessment

In addition to testing Pilot Financing Mechanisms that will provide innovative financing modalities for wastewater management projects and providing technical assistance, CReW aims to address key capacity constraints within legal, institutional and policy frameworks in Participating Countries (PCs) by: improving skills and knowledge at the national and local levels; developing tools to improve and strengthen the legislative framework for wastewater management, and; developing education and awareness programmes about wastewater and sanitation.

In order to inform these capacity building activities, a Regional Baseline Assessment Study of Wastewater Management is currently being undertaken in all PCs. UNEP-CAR/RCU which is responsible for this component of the project will use the information collected in this survey in the design and implementation of Project activities at both regional and national levels.

The information collected will also be shared in order to assist governments of the Wider Caribbean Region (WCR) in meeting the requirements of Annex III of the LBS Protocol and as they work towards protecting and preserving the marine environment by addressing wastewater management needs.

The assessment will be prepared from information collected from National Baseline Assessments to be conducted over the next few months. Victor Poyotte, the Executive Director of the Caribbean Water and Sewerage Association Inc. (CAWASA) and Dr. Homero Silva, Consultant to UNEP CAR RCU, are conducting this comprehensive survey. It is expected to be completed by December 2012.



Participants in CReW's Inception Workshop, February 2012, Kingston, Jamaica, came from most of the 13 Participating Countries

## CReW exhibited at CEF 6



Denise Forrest, CReW Project Coordinator, introduces a visitor to the Exhibit

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**National Revolving Wastewater Fund in Guyana – US \$3 million:** Creation of a financing mechanism supports the efforts of the Government of Guyana (GOG) in improving wastewater management, with a specific focus on public-private partnerships. A revolving fund would support the efforts of the GOG to finance improvements in the wastewater sector. The establishment of a Guyana Wastewater Revolving Fund (GWRF) would allow for the financing of a variety of wastewater solutions through both public and private channels. Due to the increasing participation of the private sector in infrastructure development, it is the hope that the pilot GWRF would be a flagship under the CReW in demonstrating how public-private participation can be utilized in the development of wastewater infrastructure.

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## How can wastewater management be linked to Green Economy?

Ms. Forrest asserted that more overtly inserting WWM into the green economy dialogue would have social, economic and environmental benefits. It would constitute a paradigm shift in thinking and practice which could, among other things:

- Reduce the volume and extent of water pollution through preventative practices;
- Treat polluted water using appropriate technologies and techniques for return to the environment;
- Where feasible, safely reuse and recycle wastewater thereby conserving water and nutrients; and
- Provide a platform for the development of new and innovative technologies and management practices.

Specific enabling conditions would be: a policy framework that views wastewater as a resource, supporting national regulations, economic incentives, the development of markets, and technical assistance.

## CReW Project Component 1:

**Component 1: Investment and Sustainable Financing**  
**Component 2: Reforms for Wastewater Management**  
**Component 3: Communications, Outreach and Training**

**Component 1:**  
**Investment and innovative financing for wastewater management (US\$15.073 million)**

**The component would finance:**

- (i) Individual Pilot Financing Mechanisms (PFM) that will provide and test pilot financing modalities for wastewater management projects;
- (ii) Project Development Support (PDS) to provide technical assistance, such as design assistance, to bring the first generation of projects to be financed by the PFMs to a “bankable” status.

**All of the projects identified have the following characteristics:**

- high priority projects for water/wastewater services providers;
- high impact in terms of significant improvements or prevention from further deterioration in the quality of coastal waters;
- potential to stimulate policy reforms;
- include feasibility assessments and cost/benefit analyses; and
- requirement for innovative financial and advisory assistance to bring project financing costs within ratepayers’ ability to pay.

These PFMs are essentially demonstration projects. As such, documentation of activities and outcomes is important, especially if lessons learned and best practice are to be noted with the aim of replication.

## Background:

### The GEF CReW Project

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.

Key to the CReW’s success is the piloting of financial mechanisms and their related wastewater management reforms that can be subsequently established as feasible instruments to provide sustainable financing for the implementation of environmentally sound and cost-effective wastewater management in the Caribbean region.

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).

**Learn more about the CReW at: [www.gefcrew.org](http://www.gefcrew.org)**

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