

The Global Environment Facility-funded Caribbean Regional Fund for Wastewater Management – GEF CReW

Rethinking Wastewater for Drought Relief/ Mitigation



Throughout the Caribbean, countries are currently facing the worst droughts in the last five years [1, 2, 3]. The rainy season which typically lasts from the beginning of June to the end of November, and also coincides with the hurricane season, has been drier than normal, and a similar forecast is predicted for 2016 [2]. July 2015 was the Earth's hottest month on record and 2015 might end up being the warmest year ever. A drought warning has been in effect since May 2015 for several countries including Antigua and Barbuda, Dominica, the eastern part of the Dominican Republic, Jamaica, Martinique, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Northern Guyana and the Dutch Islands of Aruba, Curacao and Bonaire.

Noted Climatologist with the Caribbean Institute for Meteorology and Hydrology, Mr. Cedric Van Meerbeeck, reasoned that this will cause serious water challenges for many countries in terms of irrigation, firefighting, domestic consumption as well as for sectors such as tourism [7].

The impacts of drought in the Caribbean

The drier than normal conditions being experienced, have meant that many Caribbean countries have been struggling to provide their constituents with the precious resource of water. On May 20th, 2015, the Government of Saint Lucia declared a water related emergency for all parts of the island until the end of July [6]. This is still in effect. Saint Lucia, as is the case in several of the countries, has implemented strict water rationing measures in order to meet domestic requirements and other demands. Some governments are also imposing fines for improper water use.

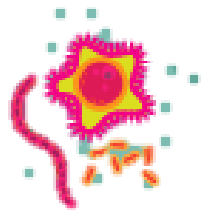
Drought brings about a range of negative economic, environmental and social impacts. The Caribbean is very dependent upon rain-fed agriculture and coupled with the prevailing drought conditions, countries are already experiencing many negative impacts. In Saint Lucia, farmers have suffered losses in the range of 50-70% for crops such as coconuts, cashews and oranges [1]. Officials in Cuba estimate that 75% of the island is affected by the drought and thousands of acres of plantains, citrus, rice and beans are affected [1]. Overall, the agricultural sector in the Caribbean has reported a loss of more than US \$1million in crops and several thousand dollars in livestock [7]. Other sectors such as tourism and health are also struggling to cope with the severe water restrictions.



Treated wastewater as an effective strategy for drought relief

Proper management of treated wastewater can be an effective strategy for drought relief in the Caribbean. While the use of wastewater for drought mitigation is not new; the notion has recently gained impetus in many parts of the world. In Los Angeles, California, approximately 70 million gallons of potable water is generated from sewer effluent [5]. This repurposing of treated wastewater has provided much needed relief for the prevailing drought that has been affecting that state for the last four years. If applied in the Caribbean such reuse could bring much needed relief.

Breaking the taboo associated with the use of treated wastewater in the Caribbean



Historically in the Caribbean, treated wastewater has been an unexploited resource. Moreover, cultural norms and public perception makes wastewater and sewage a taboo subject for most Caribbean people. As a result, much of the treated and untreated wastewater often ends up in the oceans as well as in underground aquifers. Consider that a significant portion of this treated wastewater could be repurposed for drought alleviation.

Potential uses for treated wastewater in the Caribbean

Wastewater that is properly treated can be reused to meet most of the agricultural and industrial applications in the Caribbean. Not only would this supplement the available supply, leaving more potable water available for vital household and sanitation services, it would assist in conservation through the reduction in pollutant loads to the environment. In addition the organic nutrients found within wastewater could be used as fertilizers for crops.

Constraints of reusing treated wastewater in the Caribbean

Repurposing treated wastewater in the Caribbean comes with several challenges. These include the high costs of infrastructure, operational difficulties, overcoming negative public perceptions and potential risk of cross-connection between the water main and sewer lines leading to health risks. Regulations and effective enforcement supported by regular monitoring and evaluation must be put in place.



GEF CRew

The Global Environment facility-funded Caribbean Regional Fund for Wastewater Management (GEF CRew) promotes environmentally sound and cost-effective wastewater management solutions in the Caribbean. Treated wastewater reuse can have many benefits as long as it is implemented properly with appropriate safeguards, regulations and monitoring.



How the GEF CRew project is aiding drought relief

Jamaica is one of four countries in the GEF CRew Project in which a Sustainable Financing Mechanism is being established. The recent signing of the loan agreement with the National Commercial Bank to enable the Credit Enhancement Facility (CEF) has strengthened the country's capacity to manage wastewater. The CEF will provide US\$12 million to the National Water Commission to support the rehabilitation and development of eight wastewater facilities [9]. One of the first projects expected to get underway is the replacement of the Boscobel treatment plant in St Mary, followed by the facility at Elletson Flats in St Andrew. These projects will result in improved effluent, resulting in reduced contamination of surface waters as well as underlying aquifers. The Acting President of the National Water Commission, Mr. Mark Barnett, stressed that upgrade and rehabilitation of the facilities, by ensuring better quality effluent, would make more surface water available for potable use, thereby bringing considerable drought relief [9].

More frequent and more prolonged periods of drought are likely in the future. Treated wastewater can be used in several applications to satisfy most water demands, with the level of treatment determining its final usage. Its potential is worthy of serious consideration for Caribbean countries.

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