



## Wastewater

# Definitely Not a Waste of Time

What is wastewater? Yes, there's poop in there, but besides flushing the toilet, we also produce wastewater domestically when we take a shower or wash our dishes and cars. Outside of the household, it's produced from industrial site drainage, agricultural run-off and even the residues that come from roads, sidewalks and roofs when it rains, just to name a few sources. Wastewater typically includes human waste, soaps, solvents, pharmaceuticals and other chemicals, such as fertilizers you may use in your own yard. Wastewater from industry can include germs, pesticides and even radioactive materials – all of which is largely pumped into our oceans.

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Wastewater should end up in a treatment plant before it's discharged into bodies of water, but more often than not, this doesn't happen. Christopher Corbin, Program Officer for Pollution, Caribbean Environment Program, speaking at the Wastewater Conference Curaçao 2016, stated that in developing countries, more than 80% of wastewater is discharged into the waterways because the infrastructure is either inadequate or non-existent. We end up relying on our oceans as the world's largest wastewater treatment plant. It causes

numerous problems globally, most often a threat to human health. Each year, 1.8 million children die due to diarrhea-related diseases worldwide. It's also destroying aquatic environments, contributing to dead zones - aquatic environments almost completely devoid of life. Some of this destruction is evident right here in the waters surrounding Curaçao.

### A Valuable Resource

Ironically, wastewater can be a valuable resource. When properly managed, wastewater

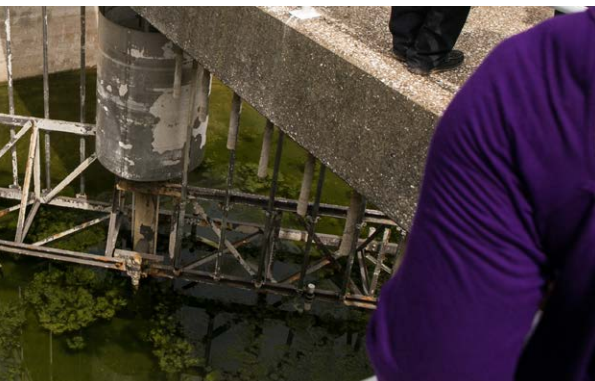
can be used in agriculture, reducing the need for scarce and expensive fresh water and expensive fertilizers. Wastewater sludge can be used to manufacture construction materials and generate biogas and biofuels. One high school student, Nurul MohdReza, was able to generate energy with wastewater by developing a prototype of a specialized, single-celled microbial fuel cell.

At the Wastewater Conference, Mike Gosselin, manager of wastewater treatment for the City of Kelowna, in Canada, spoke about how the Kelowna treatment facility is managing and reusing its wastewater. The facility uses 55% of its wastewater in agriculture, in part producing OgoGrow – a soil amendment that gives a nutrient boost to the soil, as well as amending the soil's water absorption. It uses wastewater in heat recovery systems, a local college currently using it for cooling its facility. Wastewater in Kelowna is also used to create ponds for wildlife and provides enough energy to power 40 homes per year.

Commercial sites around the world are already using wastewater to their advantage. Gosselin mentioned that in its first year of using wastewater in place of water for non-potable needs, Le Sport Resort in St. Lucia saved 3.8 million liters (or 1 million gallons) of water with significant cost savings.

### Financial Impact

One in four jobs in the Caribbean are related to the fishing industry or tourism; both are directly impacted by the health of the sea. According to Corbin, the Caribbean Sea generates more than US \$3 billion annually from



## Wastewater Conference Curaçao 2016

The Bedrijvenplatform Milieu (BPM), or the Curaçao Business Council for Sustainable Development, recently hosted the conference: Intelligent reuse of wastewater, safeguarding our coastal waters and marine life for future generations. This two-day conference, which also included pre-conference training sessions, covered a variety of topics related to the effects of wastewater. Topics ranged from: the financial burden and economic opportunity in the Caribbean; developments in wastewater management on Curaçao and the reuse of treated water to sustain the environment; to the impact wastewater is currently having on our coral reefs and how a city in Canada is using its wastewater in effective and economic ways; with many more topics to fill the informative two days.

With speakers from the Caribbean and Canada, the conference was informative and enlightening, broadening the view of the attendees as to the importance of wastewater, its global impact and the financial and environmental repercussions on the world population.

For more information about this conference, as well as other conferences hosted by BPM, check out their website: [www.bpmcuracao.com](http://www.bpmcuracao.com) or send an email to: [info@bpmcuracao.com](mailto:info@bpmcuracao.com).



tourism and fisheries. The estimated value of shoreline protection services provided by Caribbean reefs is between US \$700 million and US \$2.2 billion per year. Net benefits derived from tourism, fisheries and shoreline protection could be reduced due to coral degradation by an estimated US \$350 - \$870 million per year if nothing is done to stop it. Within the next 50 years, coral degradation and death could lead to losses totaling US \$140 million to US \$420 million annually.<sup>1</sup>

Health care costs related to cholera, gastroenteritis and hepatitis are exorbitant. Approximately \$260 billion per year is lost to diseases related to poor sanitation.<sup>2</sup> The lack of proper waste disposal creates the spread of germs that cause disease. This includes risk of exposure to disease-causing toxins from wastewater that is dumped into the oceans, making people sick from consuming seafood that lives in these polluted environments, drinking inadequately treated water, and even from water recreation such as swimming, snorkeling and diving.

According to Corbin, "Lack of money is not always a valid excuse; there is a need to develop an opportunistic mind. There are ways to look at the return on using wastewater effectively: investors looking for a return, governments looking to avoid paying subsidies and the public wanting to pay lower bills. Money talks – there is money to be saved and made from new revenue mindsets. Innovative approaches consumer outreach and private sector involvement to educate people to change local perceptions of waste is crucial for maximum impact and to ensure wise investments."

### Wastewater Facilities in Curaçao

Ursel Cordilia, the project leader at Public Works Curaçao, spoke about wastewater management and facilities on the island. There are four sewage treatment plants (STP), managed by Public Works Curaçao, on the island: Klein Kwartier, Abbattoir, Klein Hofje and Tera Kora. Future costs for renovating and updating of the facilities and operations are projected to cost the island around 37,200,000 NAF. This includes a much-needed renovation of (STP) Klein Hofje, renovation of the downtown sewer system and other projects.

Currently, only around 33% of the island's residents are connected to the sewage system because there are no regulations requiring it. According to Cordilia, "Protecting the environment and public health is the responsibility of the government." The Ministry of Traffic, Transport and Spatial Planning recognizes the need to take action and it has a short-term and long-term water management plan for the island. In the next five years, the ministry plans to work out concrete measures for tackling five pilot areas – Rif, Spanish Water, Zapateer, Piscadera Bay and Lagoon Jan Thiel. In the long-term (the next 15 years), the plan is to develop a policy on sustainable water management covering the entire ground water cycle on Curaçao, including rainwater, groundwater, wastewater, lagoons, waterways, dams, etc.

Preventing wastewater from polluting the environment is easier and cheaper than dealing with the consequences of the pollution it creates. We can increase our wastewater treatment capacity, create better infrastructure to better manage storm water run off, changing our practices at home and at work to reduce the amount and toxicity of wastewater, as well as safely reuse wastewater rather than flush it away. If we manage wastewater properly, we can turn a harmful pollutant into a valuable resource. As Corbin so eloquently put it, there's no need to reinvent the wheel, there are plenty of resources and reports available – just get started!

For more information, you can browse these websites: [www.gefcrew.org](http://www.gefcrew.org), [www.cep.unep.org](http://www.cep.unep.org).

<sup>1</sup><http://www.cep.unep.org/factsheets/>

<sup>2</sup>[https://www.ted.com/talks/rose\\_george\\_let\\_s\\_talk\\_crap\\_seriously#t-400588](https://www.ted.com/talks/rose_george_let_s_talk_crap_seriously#t-400588)