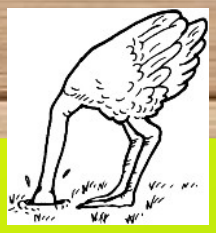
The risk of Wastewater Treatment Plants and Sewage.



By Robert Cossette, Engineer

Many people imagine that sewer networks solved the sanitary problems of the Middle Ages and brought a modern solution with automated stations.

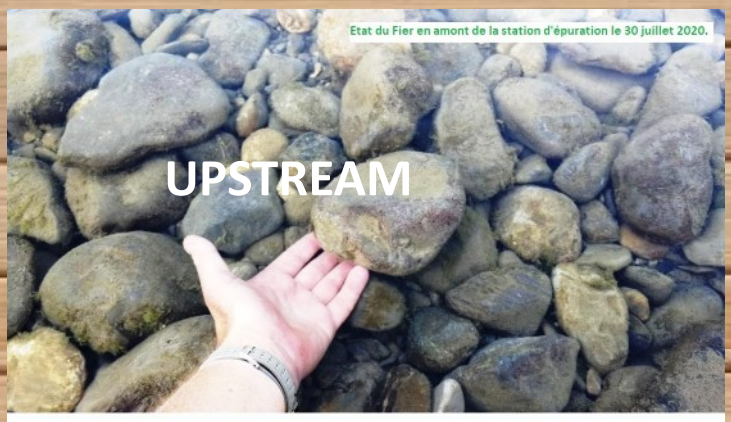
In reality, this solution makes you dependent on a waste of 50 liters of water per day to evacuate urine and your faeces towards aquatic environments which have no need for this excess fertilization nor the risks inherent in pathogens and biological disruptors.

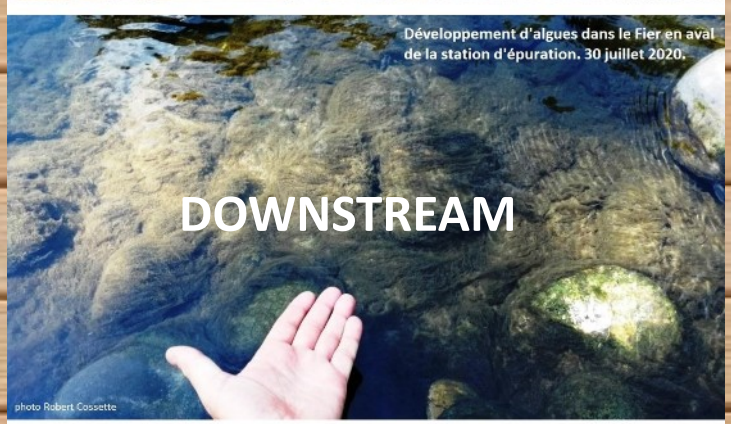
Flush Toilet means a waste of 12 to 18 tons of drinking water per year, about 20 to 30 % of your consumption. It costs you $ 50 to $ 100 a year just to drain your pee 5 times a day. In a human life of 80 years you will spend nearly $ 8,000 of drinking water (more than half an Olympic swimming pool) to send 240 Kg of Nitrogen and 40 Kg of phosphorus to fertilize the river.

Wastewater treatment plants can never neutralize 100 % of these human fertilizers even with the consumption of energy and expensive chemical reagents. In addition, the sewer standards often accommodate with 5 % of direct discharges resulting in beach closures, ear infections, diarrhea, pestilential odors, diffusion of pathogens and tons of dead fish.

According to this study published in November 2021, more than 6 million tons of human nitrogen overload aquatic environments each year. This unwelcome fertilizer aggravates the proliferation of green algae and jellyfish observed on sea coasts.

Compare the photo taken 6,5 Km apart upstream and downstream of the two Annecy sewage treatment plants. The proliferation of algae was flagrant in the Usses river as well.





The flushing chamber pot was invented in 1595 by poet John Harington for Queen Elizabeth 1st.

Better for palaces upstream, this idea has serious consequences downstream.

Eutrophication

Green river loaded with nutrients and algae in France.

In August the average water flow decreases drastically but the human fertilizer contributions increase with tourism.

Stations are breaking down every day

There is no need to look for health disasters in developing countries.

Overflows from sewer networks and treatment plants are repeated every day. The Environmental Protection Agency (EPA) estimates at up to 75,000 spills each year the number of US sewage discharges into nature, or about 8 to 10 discharges per hour in USA.

In France a direct rejection rate of 1 or 2 or 5 % is often considered "normal" with "only" one week of rejections per year on average. 1 % of the year represents 4 days of your faeces, urine, papers, shower water mixed and dumped into the rivers.

In Paris, the largest wastewater treatment plant in Europe burned down in July 2019 with tons of dead fish in the Seine. (Link 1 link 2 link 3

The largest wastewater treatment plant in Europe on fire in Paris

In Annecy in a region renowned for the quality of the water the wastewater treatment plant also burned down in 2018 with polluting spills in the river « Le Fier ». (Link)

Lake Annecy is also prone to accidents of pipes with a closure of Albigny beach in 2020 following the sewer spill directly in the lake.

On the Côte d'Azur, a beach under a billionaire castle was closed following the malfunction of a micro-station.

In Montreal, work has caused the dumping of 8 billion liters of sewage water into the St. Lawrence.

A cholera epidemic in Haiti

Caused by UN sewer spills.

10,000 dead, 800,000 sick

Haiti was hit on January 12, 2010 by a terrible earthquake which destroyed buildings and pipe networks. The toll was already tragic with more than 250,000 dead and the destruction of water and electricity infrastructure. 1.3 million people were left homeless overnight.

But a second calamity arrived a few months later with an epidemic of cholera spread by the sewers. This disease was no longer present in Haiti. It was imported by a contingent of UN peacekeepers who were using failing sewage systems.

Discharges accidentally spilled into the river.

The toll was 10,000 dead and 800,000 people sick with cholera.

https://en.wikipedia.org/wiki/2010s_Haiti_cholera_outbreak

https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON427

Ref article du journal « Le Monde »:
https://www.lemonde.fr/planete/article/2016/08/19/l-onu-admet-sa-responsabilite-dans-l-epidemie-de-cholera-en-haiti_4985249_3244.html

PLANÈTE

L'ONU admet sa responsabilité dans l'épidémie de choléra en Haïti

Les Nations unies niaient jusqu'à présent être à l'origine de la maladie, qui a causé près de 10 000 décès depuis octobre 2010.

Par Martine Valo

Publié le 19 août 2016 à 22h02 - Mis à jour le 20 août 2016 à 10h33 · Lecture 4 min.

Du bout des lèvres, l'Organisation des Nations unies (ONU) reconnaît son implication dans la terrible épidémie de choléra qui frappe Haïti. ANDRES MARTINEZ CASARES / REUTERS

List of sewer-borne diseases in the USA:

Campylobactériose, Cryptosporidiose, Escherichia coli Diarrhée, Encéphalite,Gastro-entérite, Giardiase, Hépatite A, Leptospirose, Méthémoglobinémie, Poliomyélite, Salmonellose, Shigellose, Fièvre paratyphoïde, La fièvre typhoïde, Yersiniosis.

Source : https://www.in.gov/health/eph/onsite-sewage-systems-program/diseases-involving-sewage/
Exemples d'épidémies :
https://www.jstor.org/stable/25030371
https://www.msf.org/sewage-problems-cause-cholera-outbreak-zimbabwe

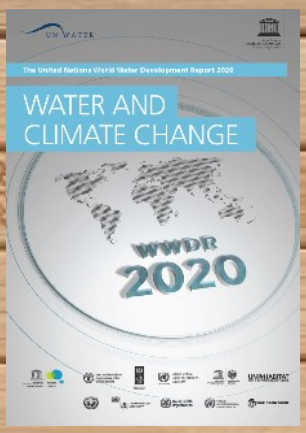
Sewage treatment plants worsen climate changes

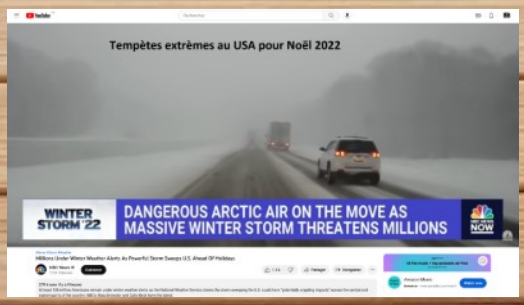
This subject is little known to the public, but water treatment is responsible for up to 7 % of greenhouse gas (GHG) emissions according to UNSECO.

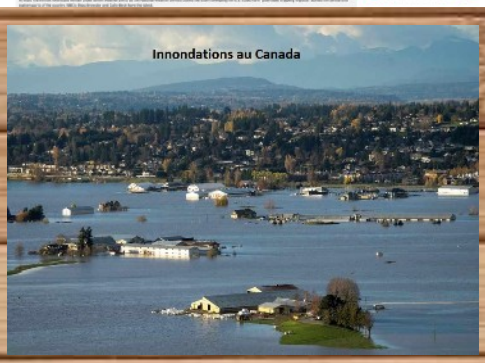
These gases cause climate change which increases the average temperature and aggravates extreme episodes of droughts, cold, storms and floods.

The decomposition of your pee - poo in the water of treatment plants generates emissions of CO2, methane CH4 and nitrous oxide N2O.

Nitrogen protoxide is 300 times more aggravating for the greenhouse effect than CO2.







Climate change will certainly lead to more water shortages
and floods with destruction of sewer networks.

During these extreme events, sanitary pipes silt up, equipment are destroyed
and washed away by the waves. Repairs can take months.

In the lowest areas, sewer overflows expose residents
to faecal pathogens and costly damage to homes.

Do you have alternatives to deploy in an emergency situation ?

ORIAZ Environment creates **waterless solutions** in Annecy.

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How to use Urine fertilizer
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The ORIAZ Solar Dripper received
The sustainability award
In Annecy in 2003

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The ORIAZ Solar Dripper received
3 eco-trophies in Paris in 2009

ECO TROPHÉES DU CADRE DE VIE 2009
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ÉCO PÉDAGOGIE 1er · ÉCO PRODUIT ARGENT · ÉCO MANAGEMENT BRONZE

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in Switzerland

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Recommended in the USA
by the Rich Earth Institute

RICH EARTH INSTITUTE

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