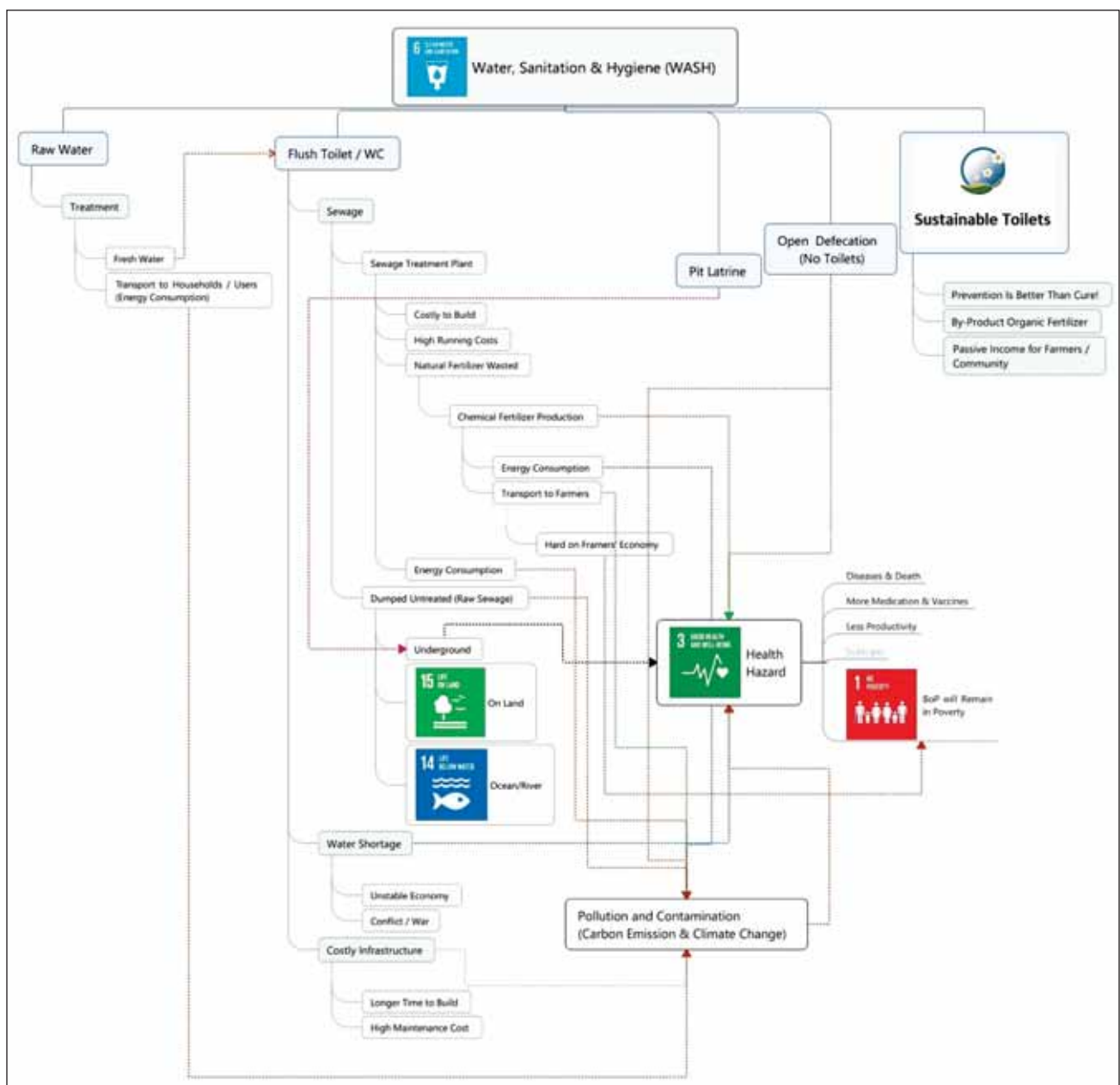


THE LOO STORY

Once upon a time, some 200 years ago, a flush toilet was conceived in England in 1596 by Sir John Harington and a model for a flush toilet was patented in England in 1775 by Alexander Cumming, to get the queens body-waste out of Windsor Castle and that was all WC was meant to do. Since then, the rest of the kingdom began to use WC and today almost every household has a WC. What most of us do not realize is that every time we flush, we waste 4L to 8L of clean water simply to send approximately 0.4L of waste from A to B.



Today, toilets have come a long way and vary greatly around the world – they have many shapes and styles for sitting or squatting, can include bidets for washing, and may be designed to save water or clean themselves.

WC or flush toilet is the root of a worldwide problem: an awful old habit of mixing drinking water with human waste (which we are now sadly all too used to). In London, the Thames river receives raw sewage for days after rain, infecting fish, seafood and in the end, the people.

In most vacation resorts around the world, sewage infects the beaches with virus, parasites and bacteria. Sewage is by far the largest polluter of oceans and estuaries, hence becoming food for fish that can end up on your plate!

As of today, approximately 2.5 billion people or 40% of the world's population have NO access to proper toilets or hygiene. Others may have toilets, yet feces may still leach out to infect the available drinking water. We may think this is only a problem in India, China or Africa but it is NOT and the solution is not a flush toilet.

As per survey, a person living in an open defecation or pit latrine area, unknowingly consumes 10 grams of fecal content every day because of the water sources that are badly affected by those practices. This is causing 80% of diseases like Dysentery, Typhoid, Polio, Cholera, Hepatitis A, Hepatitis E, Gastroenteritis, Cysticercoids, Diarrhea, Ascariasis, Trachoma and others. One gram of human feces contains 10,000,000 Viruses, 1,000,000 Bacteria, 1,000 Parasite cysts, 100 Parasite eggs. That's why people are not able to come out of the poverty cycle!

World War III will be fought over water: In 2015, NASA's satellite data revealed that 21 of the world's 37 large aquifers are severely water-stressed: <https://qz.com/691254/world-war-iii-will-be-fought-over-water>

Prevention is Better than Cure

To stop destroying our drinking water and the valuable plant-nutrients in our manure as we protect our environment, we must break the habit, change the mindset and start using sustainable toilets. We have to protect our water resources by preventing water from being flushed or mixed with other waste.

Sustainable Toilet Is for the Future

Sustainable toilets have been proven to be solving the world's pressing issues related to water, sanitation and hygiene (WASH) and give enormous social, health, economic and environmental impact globally.

Doing away with the need for septic tanks and not having to rely on sewage treatment plants mean the toilets can be easily installed, used, maintained, moved and uninstalled anywhere at no time. It can be a temporary or permanent fixture and it works in



EcoDeluxe Indoor : A Sustainable Toilet for All

harmony with the environment as the waste is isolated from its disease-carrying pathogens.

For instance, sustainable toilets developed by Swedish inventor employ special formulated bacterial culture to kill bad odour, break down excreta into tiny particles and converts urine into organic fertilizer all by gravity with no water required to flush. Therefore, the toilet is kept dry at all time as minimal water is used for cleaning or personal hygiene. The liquid fertilizer can be drained out safely to the drainage system or collected for agriculture purpose.

The affordable eco social innovation is made of coated fiberglass that can withstand heavy weights, floods, strong winds, vandalism, disaster and extreme cold or hot climate conditions. It comes in various designs and shapes, such as for standing (urinal), sitting, squatting, for both indoors and outdoors, temporary or permanent, single or multiple use, rural or urban areas.

The first pilot project for sustainable toilet in Sweden was installed for Stromstad Municipality at a water protection area nearby a lake in 2008 to protect the drinkable water from being contaminated. No maintenance except normal cleaning and hygiene was performed for the last 11 years and the end product generated by the system has been used to enhance and enrich the soil of the surrounding gardens.

Since then, the biological toilet was implemented in over 20 countries around the world including the World Heritage Sites in Jordan and had rescued the heritage sites from losing its title from UNESCO for losing its sustainability. Other success stories include 35% increase in performance and attendance for girls high

schools in Kenya and Sierra Leone, huge collection of fertilizers from 24,000 visitors at BOOM festivals in Portugal, low cost housing in Mongolia, 20,000L of water saving per day for just 10 toilets at sustainable South East Asia Games in Malaysia, off grid houses in

Cook Islands, outdoor facilities in Chile, Canada and Uganda, floating lab facilities in Malaysia and disaster relief for the Philippines, and many more in different locations especially in rural and urban areas around the world.



Ecoloo installed in South East Asian Games in Kuala Lumpur in 2017

Sustainable Toilet & Its Benefits Related to SDGs

Sustainable toilet provides a decentralized sustainable sanitation solution that does not need to be connected to any Individual Septic Tank (IST) or Sewage Treatment Plant (STP) preventing pollution and contamination. No digging, no piping or any construction work required. Just plug and use! It does not require water to flush preventing sewage generation and environmental contamination though water can still be used for personal hygiene and cleaning.

SDG # 3 Good health & Well being

Hygienic, sustainable toilets lead to healthier people especially women and children:

- **Security:** Women and children get attacked by poisonous snakes and other dangerous insects and animals while defecating in the open
- **Rape risk:** Women are facing a high risk of rape by men who are keen to keep eyes on them defecating

in the open losing their dignities, pride and risking their lives

- **Health:** A woman holding her bladder on daily basis for many hours develops a permanent pee-leakage problem & bad smell at younger age
- **Education issue:** Menstruation and poor sanitation affect girls school attendance
- **Social & Marital:** Women in India are not willing to get married if husband is not providing a toilet. "No Toilet, No Bride" movement

SDG # 6 & 7: Water and Energy Saving

With sustainable toilets, huge amount of water could be saved from being flushed away or transported and treated with 24 hour energy required during operation.

Assuming 10,000 people are using sustainable toilets 6 times/day with 8L/flush saving per visit, within one year the impact would be:

- 175,000,000L of clean water will be saved from being polluted and becoming sewage

- INR 306,600 will be saved assuming local water price is INR 0.02/liter
- INR 153,300 will be saved assuming sewage disposal price is INR 0.01/liter

Other incurring costs:

- Treatment and energy consumption of water that is flushed away
- Treatment and energy consumption of sewage that is sent to STP
- Installation and maintenance of STP
- Infrastructure and sewage system implementation, which could save a lot of money, energy and carbon footprint

SDG # 11:

By adopting sustainable solutions in the cities and communities for indoor and outdoor purposes we turn any complex and building into eco-friendly and sewage-free complex and building.

SDG # 14:

By treating our waste on site instead of dumping the untreated sewage and toxics into oceans and rivers, we prevent the lives below water from being contaminated.

SDG # 15:

By having sustainable toilets and fertilizer, more lives on land can be saved from water borne diseases, contaminated fish and chemical fertilizer. (which can be hazardous to the soil, water and lives on land)

Applications & Scalability

It is suitable for indoor and outdoor application

including high Rise buildings, hospitals, schools, boats, trains and buses, refugee camps, disaster relief, public facilities, remote locations and islands where the sewage treatment plant model is no longer viable as it is costly - both financially and environmentally, big religious gathering events and heavy duty festivals promoting eco-tourism.

Sustainable toilet may come in various shapes and designs to fit all purposes, can accommodate to any features of climate and environment with high altitude and cold/hot weather, water shortage and fragile ecological environment or climate conditions be it on or around mountains, lakes and seashores.

Value Added Fertilizer

A sustainable toilet by product will go down naturally by the pull of gravity into collection tank. The by-product is rich with nutrients and free from bad Odour and pathogens or organisms generating diseases. This organic fertilizer will be a huge saving in fertilizer usage to nursery plantation caretakers as soon as they replace the chemical fertilizer with natural fertilizer for their nursery.

Uniqueness

The Swedish sustainable toilets offer both squatting and sitting positions by putting their feet on the side steps to have squatting feeling while sitting which is perfect for the bowel system of anyone using the toilet, even better for the elderly, handicapped and pregnant women.

Sustainable toilets innovative designs give special people such as children, elderly and handicapped, the access to use the toilet with no pressure or inconveniences.



Imad Agi is Chairman & CEO, ECOLOO Group. He is an inventor, ecopreneur and a speaker. He may be contacted at email: imad.agi@ecoloo.eu

Founder & CEO, ECOLOO AB

Inventor | Ecopreneur | Speaker

Web: www.ecoloo.eu/

F: www.facebook.com/ecolooogroup