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PRESS RELEASE

**Empowered Septic Tank as Decentralized Wastewater Treatment System by BITS Pilani
Goa Campus inaugurated at Bogmalo Beach**

Hon. Minister for Panchayats, Govt. of Goa, Mr. Mauvin Godinho inaugurated the toilets and its treatment system for community, installed by BITS Pilani, K K Birla Goa Campus at Bogmalo Beach on 18th June 2022. Sancoale Zilla Panchayat member Adv. Anita Thorat, Bogmalo Panchayat officials and Dr. Srikanth Mutnuri, Professor, Water Sanitation and Hygiene Laboratory, Dept. of Biological Sciences, BITS Pilani, K K Birla Goa Campus were also present for the inauguration programme.

BITS Pilani has designed and installed these toilets and treatment system at an expenditure of about Rs. 22 Lakhs as part of DBT BIRAC, Bill & Melinda Gates Foundation Project awarded to BITS Pilani, K K Birla Goa Campus. This decentralized treatment system with Vertical Flow Constructed Wetland and Electrochemical Disinfection System is a collaborative Project with Prof. Korneel Rabaey, Ghent University, Belgium.



What is the product today?

The toilet wastewater collected in septic tank will pass through a partial Vertical flow constructed wetland (VFCW) followed by an electrochemical technology which sits after discharge point and disinfects. The technology aims at maximal simplicity through minimal mechanical processes. Septic tank effluent passes through VFCW and then to electrochemical cell and sequentially goes through high and neutralizing pH regimes. It is shown that both bacteria and helminth eggs can be killed with this approach, fulfilling discharge requirements. The effluent will be suitable for further processing or will be safer in case no sewerage system follows the treatment. The system requires minimal maintenance, mainly related to manual electrode cleaning.





Public Relations Unit

Detailed information:

According to Central Pollution Control Board (CPCB), India will need 1.5 trillion cubic meters of water to meet the water demand by 2030. Based on Niti Aayog report in 2018, the per capita water availability is disputed to deplete to 1465 cubic meters by 2025 from 1544 cubic meters, what was available in 2011 and 1816 cubic meters in 2001. In order to meet the water demand, Recycling and Reusing wastewater can be a beneficial alternative so as to reduce the stress created on the water reserve that is available for use today (Matto, Singhal, & Prasad, 2019). Sanitation and water availability being a merit good, Indian government has brought forward certain key policy initiatives and programs in accordance to that like Flagship program Namami Gange Program in 2014, Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in 2005, National Urban Sanitation Policy (NUSP) in 2008, Swachh Bharat Mission (SBM) in 2014 and National Policy on Fecal Sludge and Septage Management (NPFSSM) in 2017 for Urban Sanitation (Kapur, 2021). Out of all the policies, the policy that garnered maximum attention among the public was SBM. SBM consists of Phase 1 with major objectives of making India Open Defecation Free (ODF), to uproot Manual Scavenging and to bring about certain behavioral changes regarding some already existing sanitary practices whereas Phase 2 gave importance to maintain the ODF status achieved in phase 1 and to improve the lives of sanitation workers and the management of solid and liquid waste (Bhattacharya, Sharma, & Sharma, 2018) .

Even though in phase 1 access to safe sanitation was provided it is also required to make sure that safe and proper Containment, Collection, Transportation (If on-site treatment is not possible), Treatment and Resource recovery or Safe Disposal is done systematically in order to maintain Sanitation. In developing countries like India and other countries, there are certain complications that can arise due to transportation of waste collected to a far-off treatment facility either through sewers or vacuum trucks or manually if there is no provision for treatment plant is present nearby. There are chances of waste getting dumped off somewhere else into the environment rather than being taken to the treatment facility. Thereby untreated waste will lead to more trouble if left unattended. If treatment is not done effectively, the usage or disposal of the end product will also be unhygienic and can create maladies in humans.

As a solution to all of this inconvenience, onsite treatment of waste can be considered and one such treatment technology is our treatment system which is at TRL7 and above. BITS Pilani team had demonstrated for a single household, for 100 people equivalent for a student hostel and currently for public toilet for Bogmalo Panchayat, Goa. All the above are part of DBT BIRAC and Bill & Melinda Gates foundation projects.

For any further details, please contact:

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Single Household Empowered Septic tank plant



Treated and Disinfected Wastewater

BITS Pilani, K K Birla Goa Campus

100 people equivalent Empowered septic tank plant



BITS Pilani, K K Birla Goa Campus

Empowered Septic tank for 4 people at BITS Laundry and 100 people public toilet at Bogmalo Panchayat – second Phase



BITS Pilani, K K Birla Goa Campus

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