



**ITDI**  
**S&T MEDIASERVICE**

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*COME celebrate with us the 2019 NSTW!*

17-21 July 2019, Wednesday-Sunday

World Trade Center, Pasay City

Theme: "Science for the People: Enabling Technologies for Sustainable Development"

## Bioaugmented wastewater treatment for QSR

Pollution from wastewaters in the quick service restaurants (QSRs) is measured in terms of biochemical oxygen demand (BOD). BOD is the amount of dissolved oxygen that must be present in water in order for microorganisms to decompose the organic matter in the wastewater. The higher the BOD, the higher the degree of pollution of the wastewater.

In the Philippines, wastewater from households, commercial and industrial establishments, including QSRs may potentially cause the pollution of waterways when untreated and improperly disposed. In the Philippines, efforts by both public and private sectors have been exerted to address water pollution, capital investment costs and maintenance and operating costs are often cited as potential hindrance to the establishment of wastewater facilities. Similarly, the lack of space where to build such facilities is problem because businesses tend to optimize the use of their land for production purposes.

With the recent issuance of the Department of Environment and Natural Resources (DENR) Administrative Order No. 08, Series of 2016 (DAO 2016-08), all facilities, regardless of size or volume of wastewater discharge, are required to comply with effluent standards. For BOD, facilities discharging to a body of water classified as Class C, e.g. Pasig River, Laguna Lake, must not exceed 50 milligrams per litre (mg/L).

Untreated effluent from QSRs after their grease trap typically has a value of 400 to 600 mg/L. Another problem of QSRs, especially those stand-alone, is the lack of space to build their treatment facility with a capacity of six (6) cubic metres per day ( $m^3/d$ ). With 126,108 registered accommodation and food service shops operating in the Philippines, such is considerably a large potential of degrading our water resources.

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### Our Business is Industry

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Department of Science and Technology INDUSTRIAL TECHNOLOGY DEVELOPMENT INSTITUTE  
DOST Compound, General Santos Avenue, Bicutan, Taguig City Tel.: 837-2071 local 2184 / 2268



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## ITDI explores options

At the Environment and Biotechnology Division of the Industrial Technology Development Institute (EBD-ITDI) its wastewater engineers designed a compact wastewater system for stand-alone QSRs that is bioaugmented. Here a bacterial culture is added to wastewater to speed up rate of degradation of its contaminants. This is so because while organisms in wastewater may be able to break it down, it may be inefficient and slow.

Tests to check on efficiency of ITDI's bioaugmentation technology shows improvement in quality of pollutants by as much 97.5% for BOD, 99.9% - oil and grease, 97.2% - TSS, and 98.0% - surfactant. Similar commercially available technologies are 60 percent efficient. Further, while the standard pH of treated effluent ranges from 6.0-9.5, the pH of effluent treated using ITDI's system is 7.65; water has a pH of 7.0. The result thus, using the ITDI system, is a more uniform waste prior to their biological treatment.

The Compact Wastewater Treatment System is one of three ITDI-developed technologies selected to be presented during the Forum with Industry on July 18 during the 2019 National S&T Week (NSTW) Exhibits slated on July 17-21 at the World Trade Center-Metro Manila. Admission to the exhibits is FREE. It is open to the public from 8:00 AM to 5:00 PM.

NSTW is celebrated every third week of July through Proclamation No. 169 of 1993 to highlight significant contributions of S&T to national development.

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