



# Wastewater Purification System by Tidal Artificial Wetlands

- Wesco Inc. -

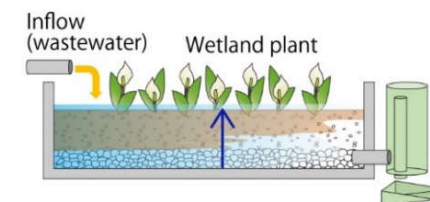


Sustainable water purification system applying the purification function of tidal flats

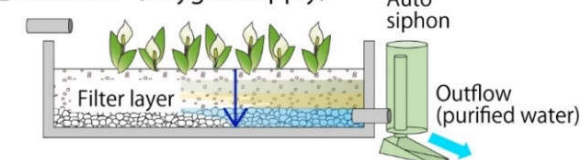


Purification of raw sewage water to below standard values

## ① Inflow (Anaerobic state)



## ② Outflow (Oxygen supply)



Pollutants entering the wetland are filtered out, and the water level fluctuations in the wetland, both aerobic and anaerobic microorganisms, as well as the plants and animals in the wetland, decompose and remove the pollutants.

## Features

Our proposed technology, "Tidal Artificial Wetlands," has a significant advantage over other water purification technologies in that it requires almost no running costs. In addition to purifying wastewater, it also helps in the development of green landscapes, environmental education, and ecosystem conservation, and allows for the cultivation of crops in the wetlands.

## Overview (Technical principles, actions, etc.)

The "Tidal Artificial Wetlands" are sustainable green infrastructure based on the natural purification mechanism of tidal flats. By optimizing the shape and structure of the artificial wetlands and the method of water flow according to the conditions of polluted water quality and water quantity, high purification capacity can be achieved sustainably. Over the past 12 years, we have established this method and have achieved a purification capacity that is approximately 10 times greater than that of conventional artificial wetlands. It is of great interest not only in engineering but also in ecology, and we are still advancing the technology.

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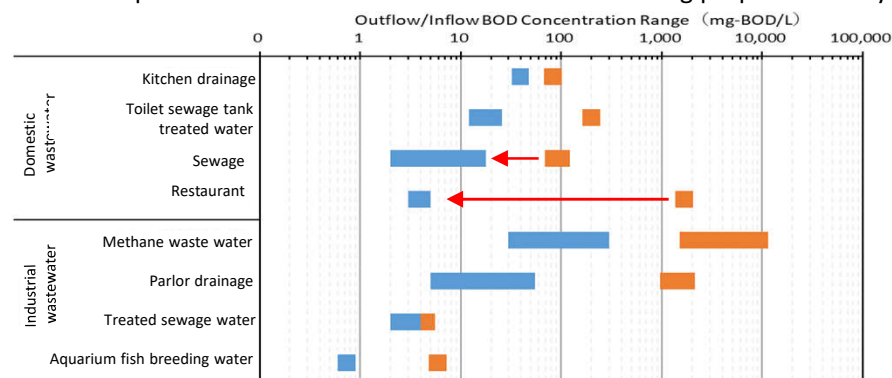
Team E-Kansai

## Performance /specifications of technology / product



We design purification facilities (spaces) based on site conditions (topography, water quality, and quantity), issues, and needs. The left and above figures show the design of an artificial tidal wetland to be installed at Damsenpark in Ho Chi Minh City.

Results of purification of BOD concentrations at the existing proposed facility



To date, the water quality of both domestic and industrial wastewater has met international standards after treatment.

## Usage examples / result

- We have acquired a Japanese patent for our "tidal artificial wetland water purification system," which achieves higher purification performance and space saving compared to conventional artificial wetlands, and for our "automatic siphon device," which does not use electricity.
- In Japan, we have implemented purification and treatment of sewage treatment water for agricultural use, aquarium breeding wastewater, final disposal site effluent, restaurant wastewater, biogas effluent, milking parlor wastewater, raw sewage, and so forth. Overseas, we have received business inquiries from Vietnam, the Philippines, Samoa, Fiji, and other countries for purification of wastewater from livestock farms, hotels, restaurants, and remote islands.
- At the academic level, we are also receiving attention from academic societies in a variety of fields. We are continuously publishing papers and promoting awareness on topics such as aeration-independent purification, sustainability of purification functions by artificial wetlands, green infrastructure for purification facilities, and preservation of biodiversity.

