



## Implementation systems

【Japan side】 - MIKUNIYA Corporation,  
- Kawasaki City Waterworks and Sewerage Bureau,  
- Kyoto University

【Vietnam side】 - Da Nang University of Technology

## Background

- In Vietnam, the majority of "organic sludge" produced by factories and sewage treatment processes is currently disposed of in landfills.
- In Da Nang City, the contamination of surrounding rivers by leachate from the final landfill site has become a pressing issue.** Immediate action is needed as various types of waste, including sludge, are also being dumped at the landfill site.
- While efforts are being made to address leachate concerns at the final landfill disposal sites, the reduction of nitrogen load remains unresolved, requiring a fundamental solution.

## Project outline

- To assess and confirm the impact of reducing organic sludge volume and utilizing biomass resources on improving water quality** (including measuring leachate and the water quality of surrounding rivers, among other parameters) at the final landfill disposal site.
- To examine the implementation of a business model and assess future business development to validate the effectiveness of MIKUNIYA's technology.

## Location

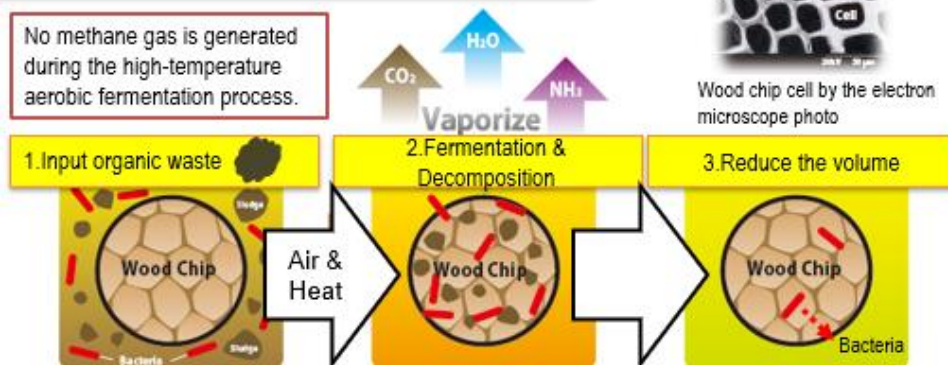
**Da Nang, Vietnam** (Da Nang City, famous as a seaside resort, is an international environmentally friendly city, hosting APEC.)



## Outline of technology

- To reduce 90% or more of organic waste (excess sludge from wastewater treatment, garbage, etc.) within 24 hours using high-temperature aerobic fermentation technology.**
- To ensure consideration for the local ecosystem by using wood chips and microorganisms (naturally occurring local bacteria present in the air).

## Reason for 90% volume reduction



Step 1: Put organic waste into a fermentation tank containing wood chips and blow air  
Step 2: Solid organic matter is sorbed into the voids of the wood chips, and the organic waste is fermented and decomposed by microorganisms that proliferate in the voids of the wood chips, producing carbon dioxide (CO<sub>2</sub>), water (H<sub>2</sub>O), and ammonia (NH<sub>3</sub>).  
Step 3: Microorganisms are reduced through autolysis, leaving behind wood chip pieces and minerals in the reduced volume of organic waste. **The residue is recycled as fungal fertilizer or biomass fuel.**

## Expected results and business prospects

- Improvement of leachate and water quality in public water areas through the volume reduction of organic sludge and utilization of biomass resources
- Horizontal development in Vietnam (such as Nha Trang, another seaside resort area)
- Horizontal expansion to neighboring countries such as Thailand and Laos by taking advantage of the location of Da Nang at the entrance to the East-West Economic Corridor