

# Formulation of 'Waste-to-Resources' Link Model by the MRM/Subcritical Water Reactor

MRM亜臨界水資源再生装置による資源循環リンク形成

Team SCW Japan

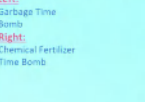
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### 1. Background of Our Study 研究の背景

#### (1) Necessity of 'Waste-to-Resources' Link Formulation



Left:  
Garbage Time Bomb



Right:  
Chemical Fertilizer Time Bomb



'Garbage Patch' observed in the Pacific Ocean (NASA)



2020  
(By Junko Shimoda)

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Above:  
Heavy Eutrophication

Below:  
Groundwater Contamination by nitrate caused by massive chemical fertilizer use in Asia

### Objectives: Workability of MRM/Subcritical Water Reactor 研究目的 Effective Decomposing of Biomass by Physico-chemical Hydrolysis Reaction



Commercialized MRM/SCW Reactor (2-Lined Reactor)

#### Merits of the Reactor

- Applicable to various kinds of organic waste
- Compact in design
- Simple & speedy to operate with smaller energy consumption
- Therefore, low-cost in installation & operation

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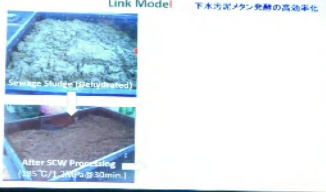
### Verification Test of Food Residue Processing by Subcritical Water Reactor

- Temperature: 190°C
- Pressure: 1.8 atm (1.2 MPa)
- Reaction Time: 20 min.

2018/11/20

### Case-2: 'Sewage-Sludge-to-Methane-Ferment.-Material' Link Model

下水汚泥メタン発酵の高効率化



Before SCW Processing (2018/11/20)

After SCW Processing (180°C, 1.8MPa, 30min.)



