



# Advanced Energy Saving Wastewater Treatment System (Pre-treated Trickling Filter System)

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# Company Profile

**METAWATER** is the leading engineering company, based in Japan, with unique products and wide range of experiences from product supply, EPC up to O&M service incl. PFI projects.

Capital JPY 11.9 Bil. (ca. US\$ 100 Mil.)

Stock Market First Section of Tokyo Stock Exchange, Code:9551

Net Sales JPY 128 Bil. (ca. US\$ 1.17 Bil.)

Employees 3,340 (consolidated)

Location (JPN) Tokyo (Head Office), Hino Office, Nagoya Office  
(Intl.) Vietnam, Cambodia, Singapore, Netherlands, Germany, Swiss, USA

## Ceramic Membrane



**More than 40%** of share in MF/UF DWTP in Japan

2

## Ozone Generator



**Top supplier** more than 170 installations

## Sludge Incineration



**More than 25%** of share in Japan  
**more than 45%** in large scale

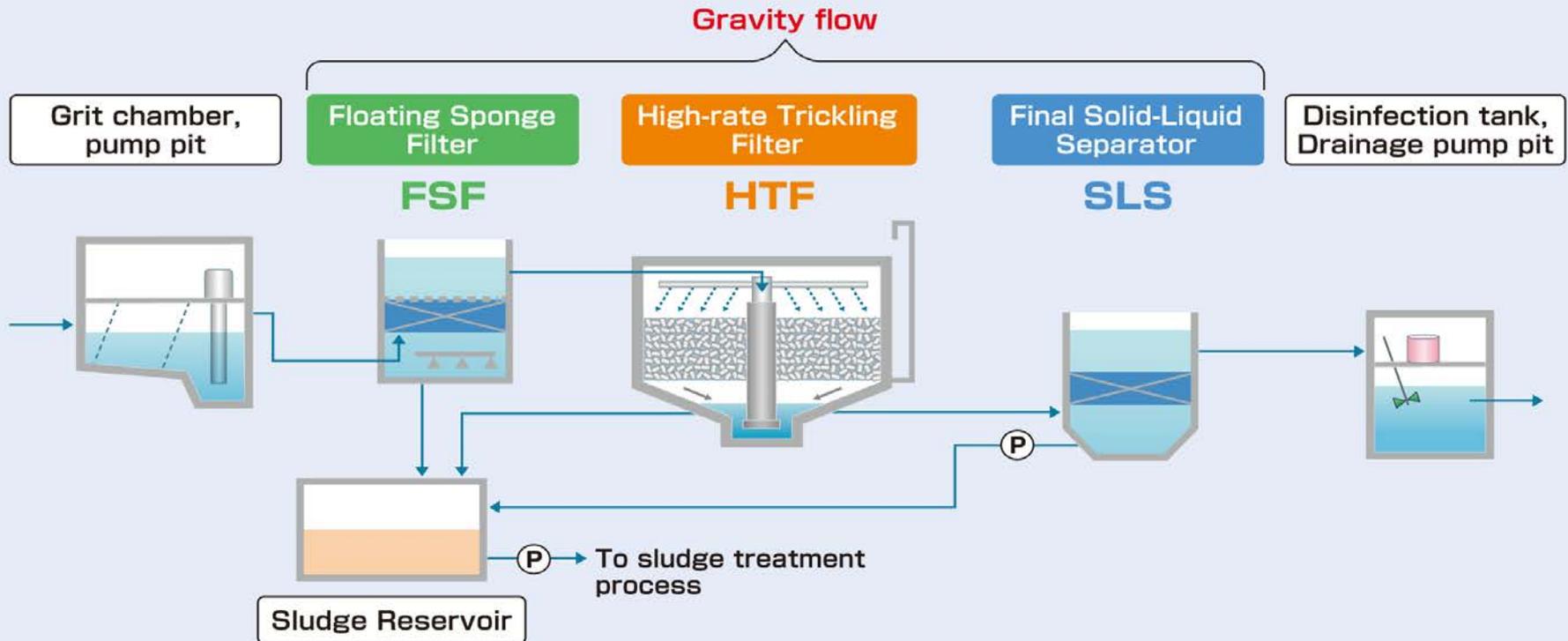
## PTF System



Newly developed product

# System Flow

The system consists of three proprietary technologies



Floating Sponge Filter(FSF)

Removal of Debris, SS and particulate BOD

High-rate Trickling Filter(HTF)

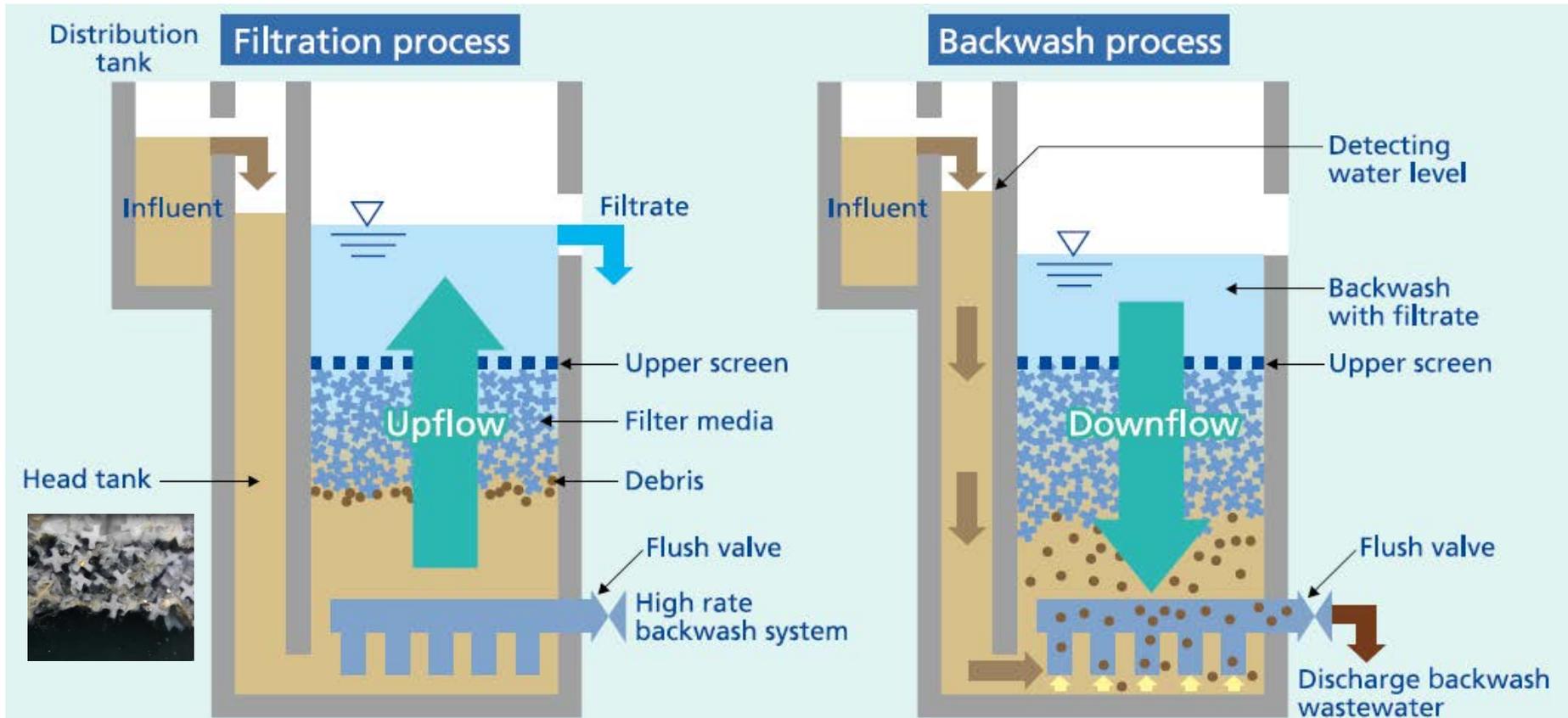
Removal of soluble BOD

Final Solid-Liquid Separator(SLS)

Removal of fine SS (detached biofilm etc.)

# Floating Sponge Filter "FSF"

"No coagulant", "No clogging", "short-time backwash"



- ◆ High removal performance
- ◆ Continuous operation
- ◆ No screen cleaning
- ◆ Many installations in Japan

Filter media



Shape	Pinwheel shape
Scale	7.5 × 7.5 × 4 mm
Material	Polymer
Specific gravity	Lower than 1

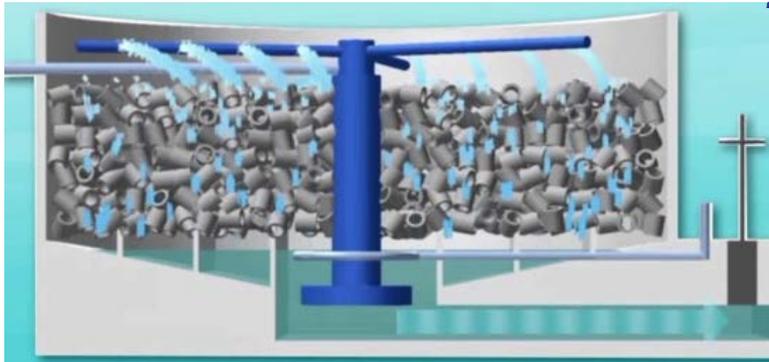
# High-rate Trickling Filter "HTF"

"High Hydraulic Load", "Floatable & Washable media"

Trickling process

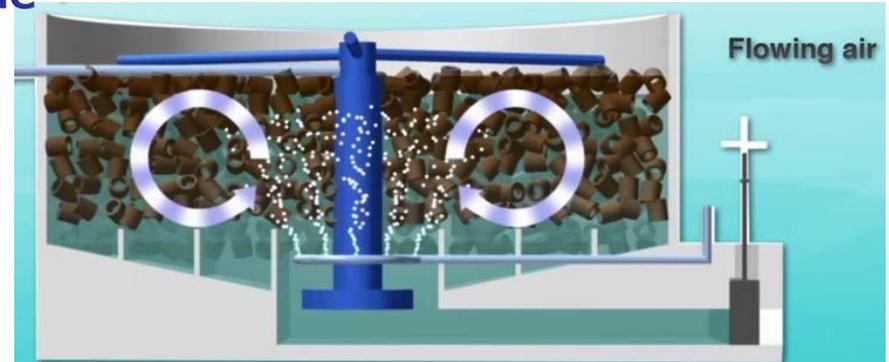
Sprinkler **1.6kg-BOD/m<sup>3</sup> d**

Monthly  
2~3 time



Washing process "Soaking"

Remove excess sludge and insects



Rotate several times per minute by gravity



- ◆ Higher hydraulic load than rock media
- ◆ No electric power to supply oxygen
- ◆ Mitigate odor and flies problems

Filter media



Shape	Cylindrical shape
Scale	15 × φ15 mm
Material	Polymer
Specific gravity	Lower than 1

# Solid-Liquid Separator "SLS"

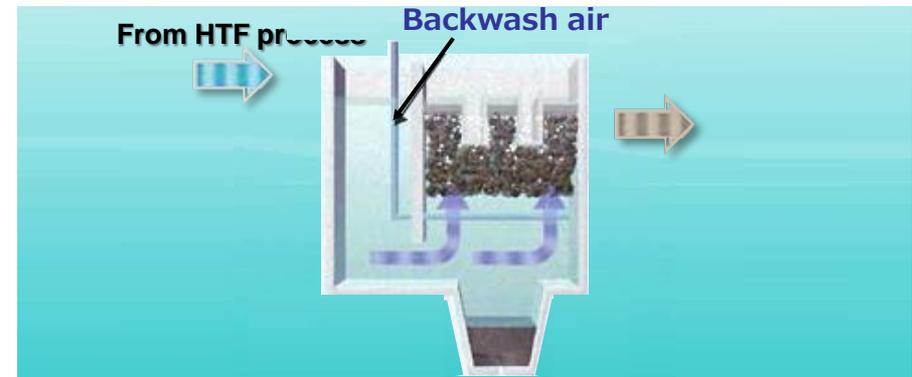
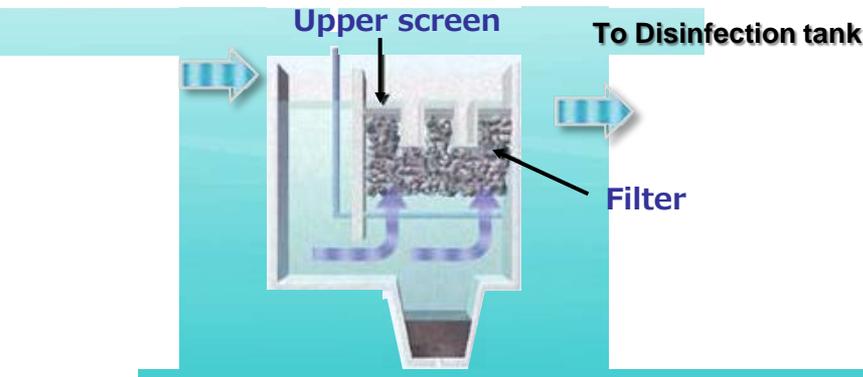
## "Simple and Compact" Sedimentation tank

Separation process

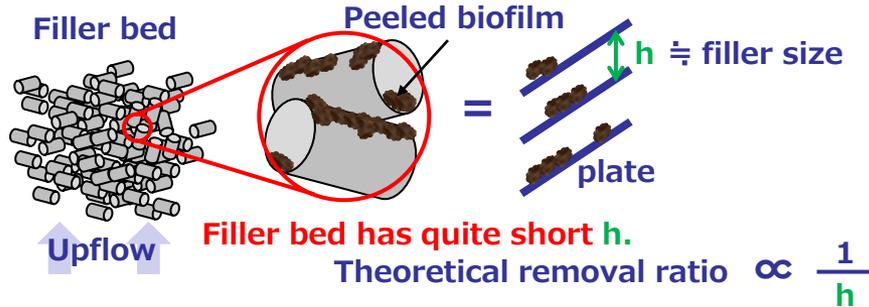
150 m<sup>3</sup>/m<sup>2</sup> d

Backwash process

Retained SS flushing by backwash air



Filler bed works like a "micro" plate settler.



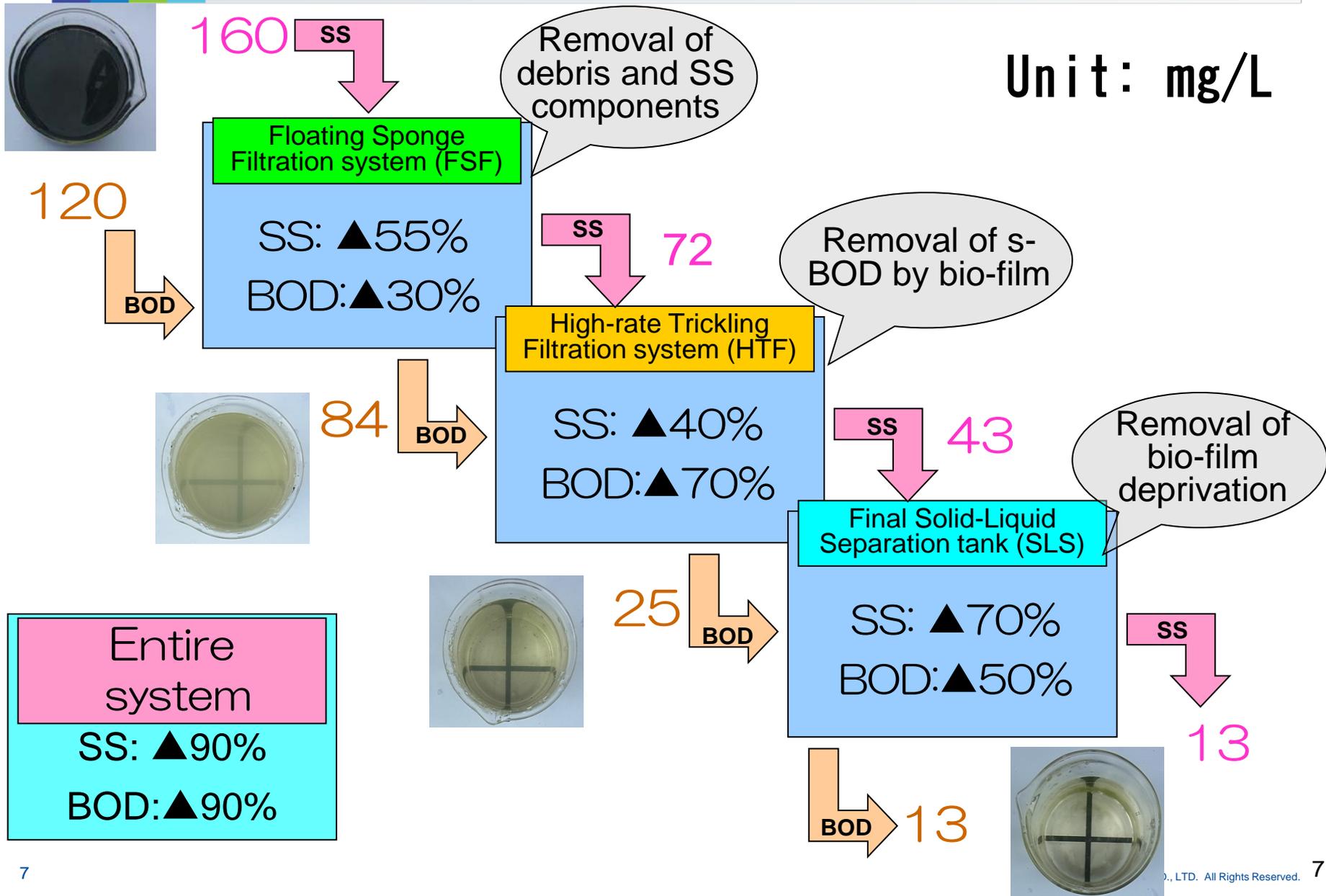
- ◆ Simple configuration
- ◆ High removal ratio
- ◆ Suitable for HTF effluent



Filter media

Shape	Cylindrical shape (Smooth surface)
Scale	7 × φ7 mm
Material	Polymer
Specific gravity	Lower than 1

# Removal efficiency



Japan sewage works agency (JS), a qualified third-party institute, has verified the performance of this technology.



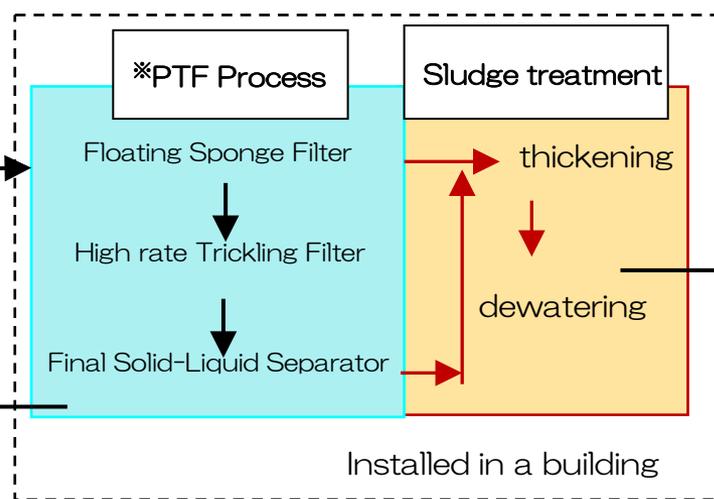
# Technical Comparison

	Conventional Activated Sludge Process	Oxidation Ditch Process	Sequencing Batch Process	PTF Process
System Flow				
Power Consumption	0.4kWh/m <sup>3</sup>	0.8 kWh/m <sup>3</sup>	0.9 kWh/m <sup>3</sup>	0.1 kWh/m <sup>3</sup>
Floor Space	4,000 m <sup>2</sup>	14,400 m <sup>2</sup>	3,600 m <sup>2</sup>	2,050 m <sup>2</sup>
Technical Level required for O&M	High	Low	High	Low
Strong Point	<ul style="list-style-type: none"> <li>• Stable treated water quality</li> <li>• Various performance</li> <li>• Space-saving design</li> </ul>	<ul style="list-style-type: none"> <li>• Easy maintenance</li> <li>• Stable treated water quality</li> <li>• Small amount of sludge</li> </ul>	<ul style="list-style-type: none"> <li>• Low facility cost</li> <li>• Easy maintenance of load change</li> </ul>	<ul style="list-style-type: none"> <li>• Stable treated water quality</li> <li>• Extremely low energy-saving</li> <li>• Low facility cost</li> <li>• Easy operation maintenance</li> <li>• Space-saving design</li> </ul>
Weak Point	<ul style="list-style-type: none"> <li>• Expensive construction cost</li> <li>• Know-how on maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for small space</li> <li>• Taking large space</li> <li>• High energy consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for small scale</li> <li>• Complicated management</li> <li>• High energy consumption</li> </ul>	<ul style="list-style-type: none"> <li>• A few record of performance</li> </ul>
Over-all Judgment	++	++	++	+++

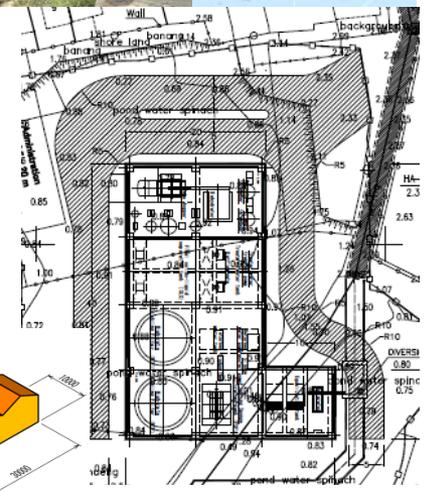
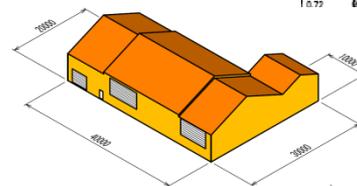
# Overview of the Hoian Project

Adoption determination of ODA grant for Hoi An City(Dec. 2016)

Project name	The Project for Water Quality Improvement for Japanese Bridge Area in Hoi An City
Overview of the project	Construction of new wastewater treatment plant of 2,000m <sup>3</sup> /day Existing waterway repairing (1.6km) Unit trial operation (Instruction of O & M)
Schedule	Terms of work (Construction work : 18 month+ Instruction of O&M after equipment delivery : 6 months) Warranty period : 1 year after equipment delivery (Including instruction of O&M)



Outside the disposal  
Sludge cake  
0.6m<sup>3</sup>/day



**Advantages of PTF system are,**

- Stable Treatment Performance**
- Extremely Low Power Consumption**
- Small environmental Footprint**
- Easy Operation and Maintenance**





# Thank you for your attention.



**METAWATER**

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