

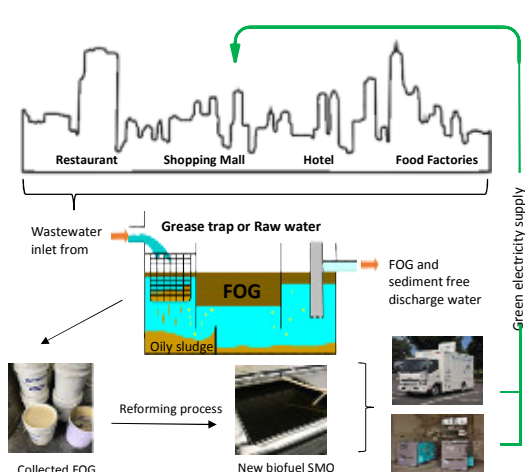


Kawasaki Green Innovation Cluster Member Information		Management Number	Section Number	Company
Business Classification		Air, Soil and Water Business		
Business Field		Infrastructure, management and control of wastewater treatment		
Company/Organization Information	Company Name	株式会社ティービーエム		
	Company Name (EN)	TBM Co., Ltd.		
	President	Kunihiro SAHARA		
	Address	5-1586 Mikajima, Tokorozawa, Saitama, 359-1164, Japan		
	Contact	+81-42-347-9671		
	Capital	17 million JPY		
	No. of Employees	10		
	E-mail	info@kankichikun.com		
	Website	http://kankichikun.com/		
	Branches/Agencies	Japan Hanamidai FOG-green power plants Overseas		
Business Activities, Messages and Others	Business Activities	<p>The wastewater derived from daily preparation and consumption of foods contains a lot of fats, oils and grease (FOG). FOG has been increasing proportionally by the world population growth and it has caused a serious pollution on rivers and seas.</p> <p>FOG normally exists as small lumps on a surface of wastewater. In general, 60 tons of wastewater are required to purify a 200ml cup of FOG. TBM Co., Ltd. has three innovative techniques to reuse FOG:</p> <ol style="list-style-type: none"> 1. Technique for the perfect separation and collection of FOG from wastewater. 2. Reforming technique of collected FOG in a new bio fuel for an electricity generator. 3. Converting technique of collected oily sludge in a resource for a methane gas generator. <p>TBM Co., Ltd. realizes a new green power generation system that protects our water environment. This system helps to achieve the various objectives of SDGs: reduction of urban and industrial wastes, reduction of the organic loading rate in sewage water, creation of green energy and creation of many employment opportunities.</p>		
	Message/Other			
	Examples of Products	<ol style="list-style-type: none"> 1. Mobile vacuum FOG separator <i>Kankichi-kun</i> 2. Automatic grease trap system <i>Kankichi-kun Jr.</i> 3. Oily sludge waste reducing device 4. FOG-green power vehicle generators (pic. 1) 5. FOG-green power station and SMO biofuel production plants (pic.2) <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: right;">  pic. 1 </div> <div style="text-align: right;">  pic. 2 </div> </div>		

Kawasaki Green Innovation Cluster Product Technology Information		Management Number	Section Number	Company
Business Classification	Air, Soil and Water Business			
Business Field	Infrastructure, management and control of wastewater treatment			
Company Name	TBM Co., Ltd.			
Product/Technology	TBM FOG-green power generation system			
Overview of Products/Technologies	Features	<p>Our FOG-green power generation system exploits the potentiality of FOG, which is one of the most serious causes of environmental pollution. Not only in emerging nations but also in developed countries, FOG flowing into rivers and seas heavily contaminate them by pollution substances. Our FOG-green power generation system exploits the potential of FOG, which is previously disposed as a waste. Today, unexplored resource can help to achieve the 5 objectives of SDGs:</p> <ol style="list-style-type: none"> FOG from “waste” to “resource” to create green electricity (cfr. SDGs No7); Convert FOG into a new biofuel (cfr. SDGs No9); Stimulate the circular economy with the reuse of FOG as a resource to create electricity (cfr. SDGs No11); Realize the perfect purification of wastewater and reuse of FOG (cfr. SDGs No 12); 		
	Keywords	SDGs, FOG, wastewater, sewer blockage, renewable energy resource, IoT, sustainable energy, reduction of CO2 emissions, reduction of organic loading rate, sustainable living, emergency power supply.		
	Price	Subject to negotiation		
Detailed Information about Products/Technologies	Pictures relating to products and technologies	<p>The biofuel for FOG-green power generation system is called Straight Mixed Oils (SMO). The chemical property of SMO completely differs from BDF in the following points:</p> <ol style="list-style-type: none"> Throughout the production of SMO, <ol style="list-style-type: none"> No chemical synthesis and chemical additives are used; No harmful by-products (ex. glycerol). Residual sludge are recovered and can be utilized as resources for methane gas (via fermentation reaction) which can be also combusted for power generation. Complete combustion (no ash left) <p>Generally, by reforming 1 ton of FOG collected, 600L of SMO can be recovered (recovery rate: approx. 60%). According to the calculation by the National Institute for Environmental Studies in Japan, 20 gigawatt-hour (GWh) are generated from 10,000 tons of FOG, resulting 30,000 tons of CO2 are reduced.</p> <p>TBM Co., Ltd. has been planning to apply this technology for a large number of stores located in Tokyo and neighboring prefectures. It can be estimated that 110kt/year of FOG collected produce 70kt/year of SMO, which generate 280 GWh/year of electricity. This synergetic effect could be equivalent to the reduction of 370kt-CO2 emission, by decreasing the organic load to sewage plants and the amount of petroleum combusted for thermal power generation. If our FOG-green power generation system will be introduced, we can reduce urban and industrial wastes, organic loading rate in sewage water and create green energy.</p> 		
		Advantages	Examples of use (Domestic and overseas)	<ol style="list-style-type: none"> Management and control of wastewater treatment in more than 400 restaurants, hamburger chains etc. in the Tokyo metropolitan area. Since April 2017, the FOG-green power generation system’s power plant (Saitama prefecture) generates 100KW x 24 hours x 365 days. From 2016 to 2017, under the auspice of NEDO, we have executed the project “Locavorism of green energy” in the Musashino municipality, Tokyo. Our FOG-green power generation system was introduced to 160 stores in the commercial district of the municipality. In this area, FOG was collected which was equivalent to 47GWh of electricity per year. We are proceeding the installation of our green power plants in various municipalities: Yokohama city, Tokorozawa city and Toshima-ku of metropolitan Tokyo.