

**REMATEC**  
Innovation for the Earth



Thailand-Japan Environmental Solution Week

# **Introduction of initiatives to solve social issues in the environmental field**

---

REMATEC Holdings Corporation



January 16<sup>th</sup>, 2020

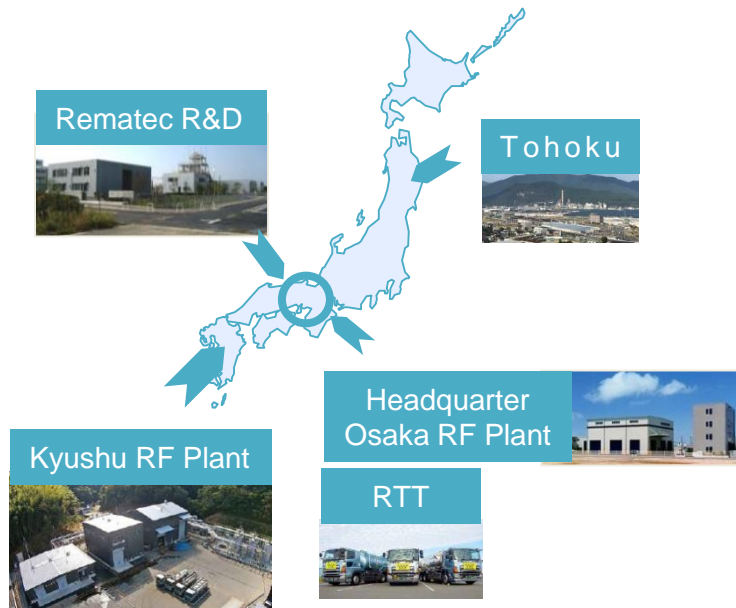
- ◆ Company Profile
- ◆ Recycling Business
- ◆ Renewable Energy Business
- ◆ REMATEC Group Achievements
- ◆ REMAETC Group Overseas Business
- ◆ REMATEC Group Environmental Goals

## Rematec Group

Establishment : November 1974

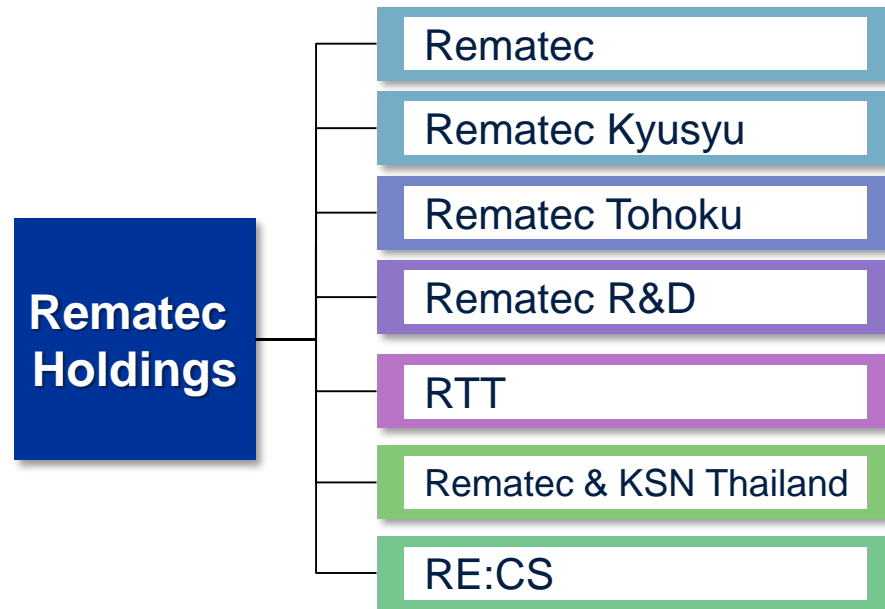
Capital : 100 Million Yen

Main Business : Material Recycling  
RF Technology  
SC\* Technology  
Environment Regeneration



\*SC : Subcritical Water

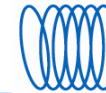
## Rematec Group Organization Chart



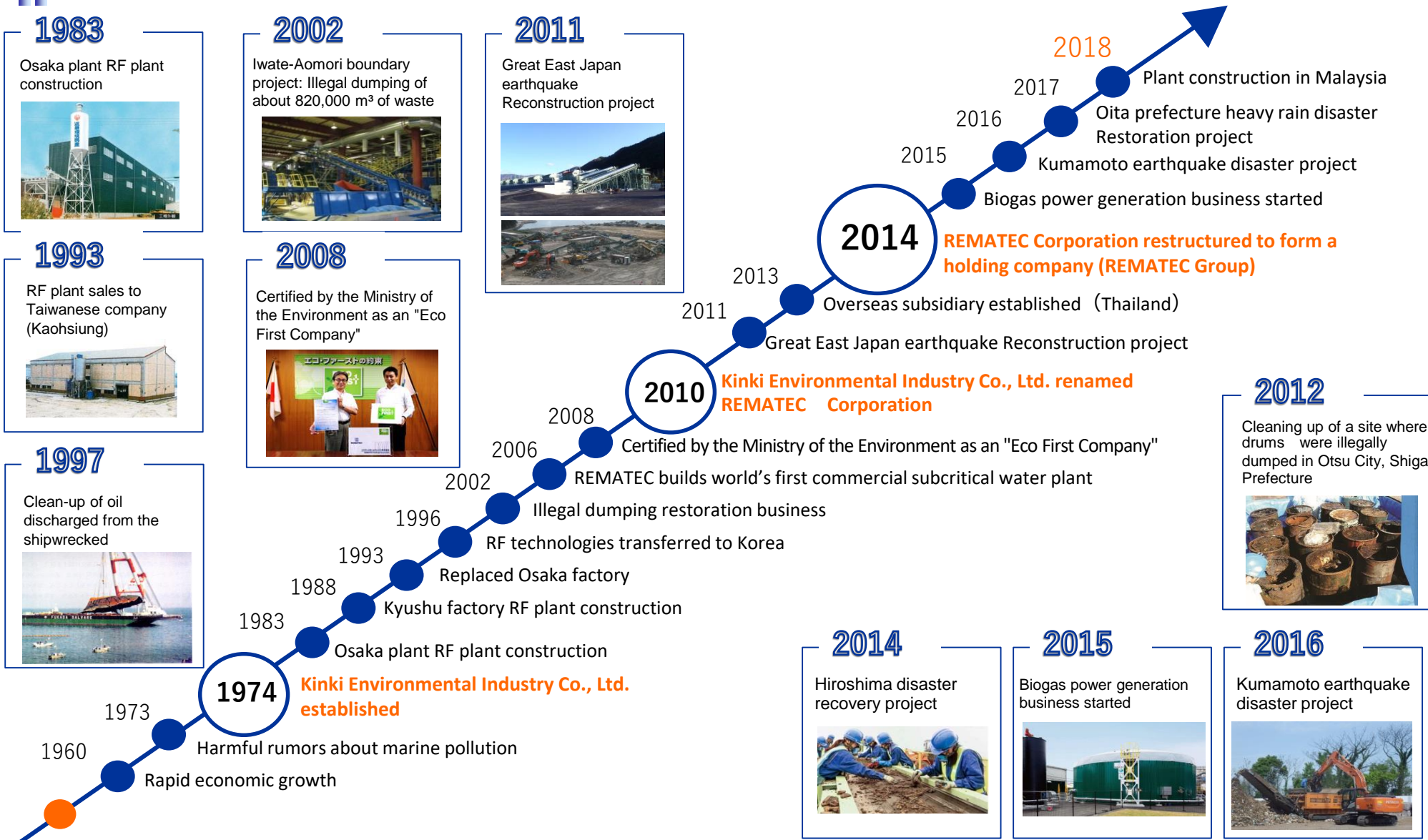
Certified as Eco-first Company by  
Ministry of Environment in Nov. 2008.



# Company Profile



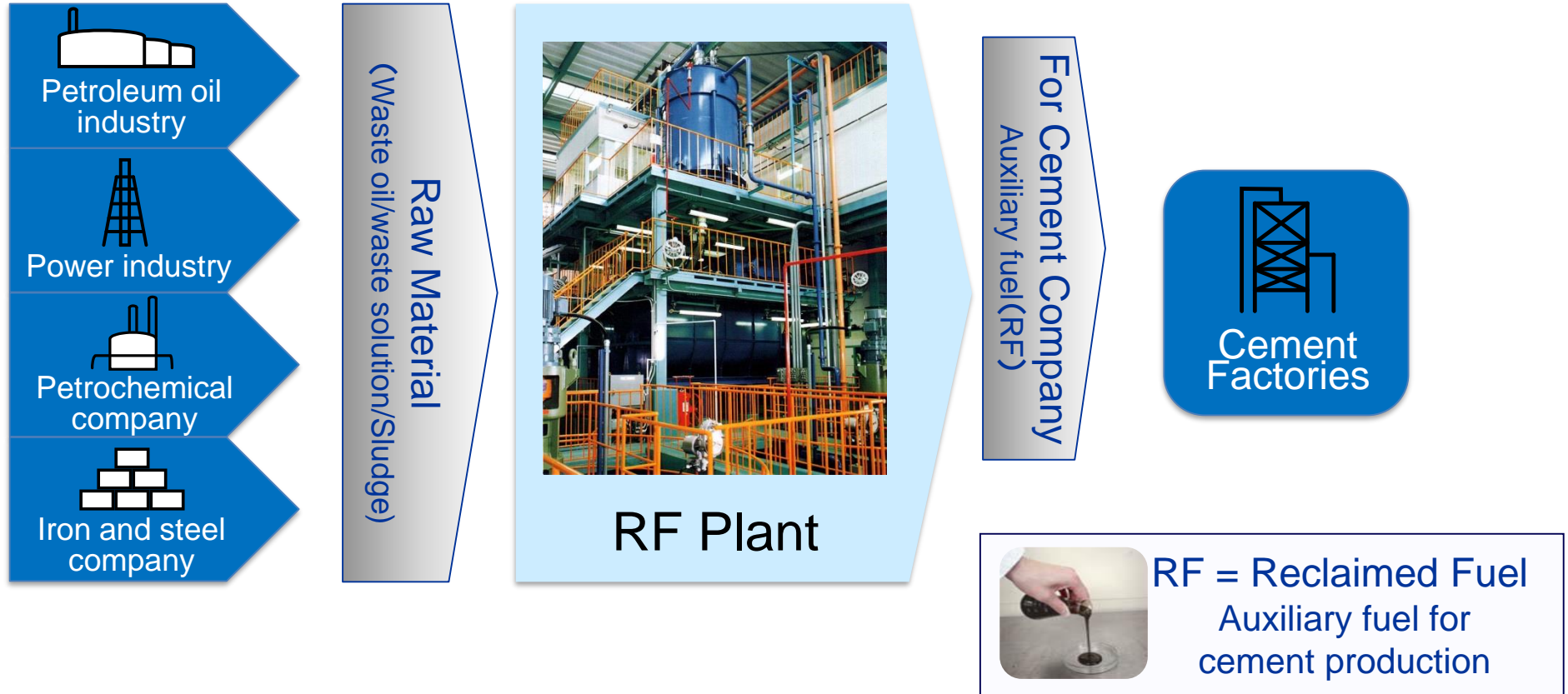
**REMATEC**  
Innovation for the Earth



# **Recycling Business**

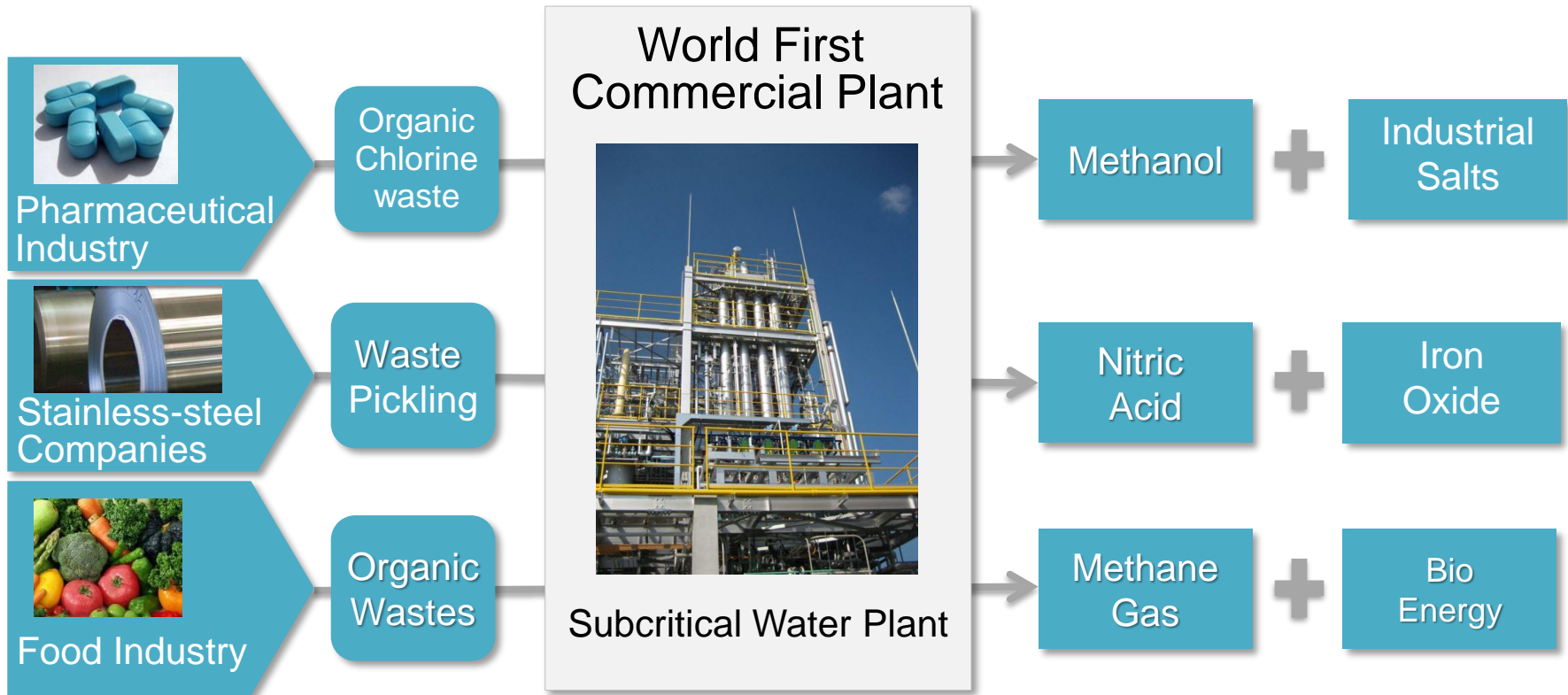


# Reclaimed Fuel (RF)



Original technology of REMATEC CORPORATION , Patent No.3039644  
A compound possessing reversible thixotropic property used as an auxiliary fuel for cement pyroprocess

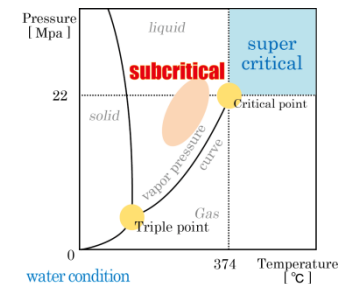
# Subcritical Water Technology



SC事業



Critical point of water is at temp. 374 °C and pressure 22MPa. Above this point, water will be converted to non-solution and non-vapor state. Subcritical water is below or near this point. In this area, it has high solubility and hydrolysis capability. As a new technology, sub-critical water can provide very wide applications in waste recycle field. Environmental friendly waste recycling is possible by utilizing water's special properties in subcritical state.



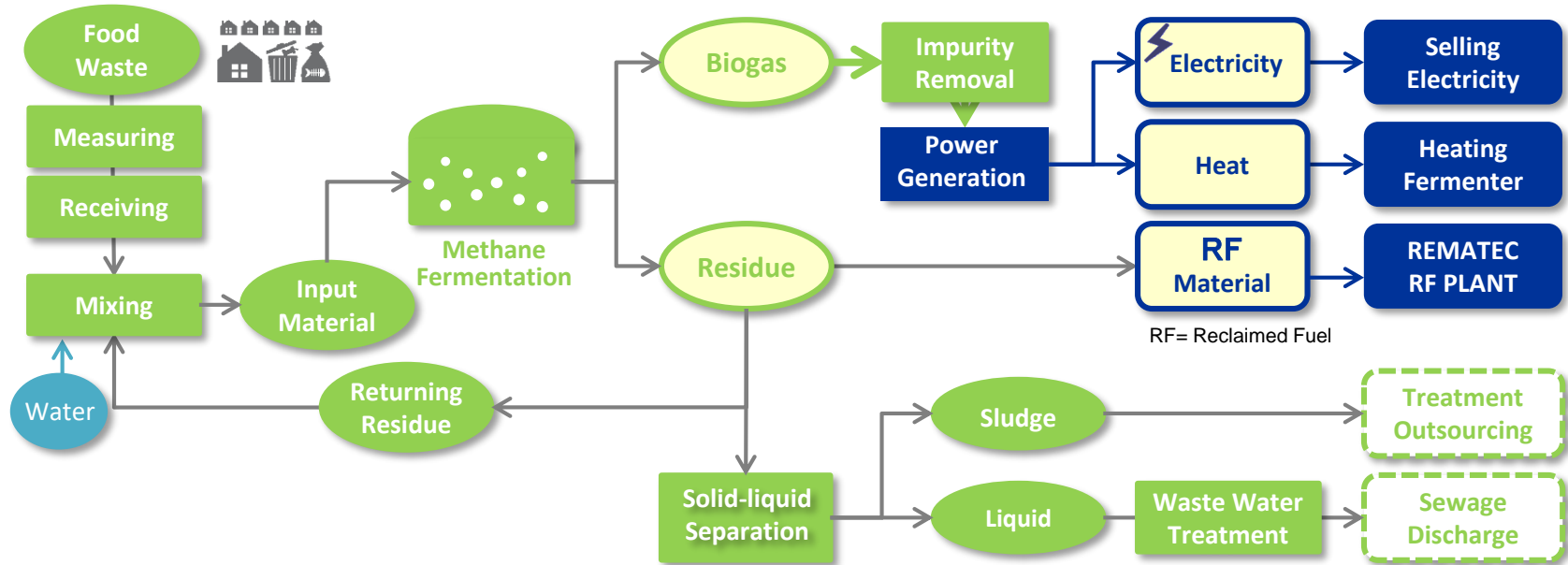
# **Renewable Energy Business**





# Renewable Energy Business

## Flow of the MF Power 1st

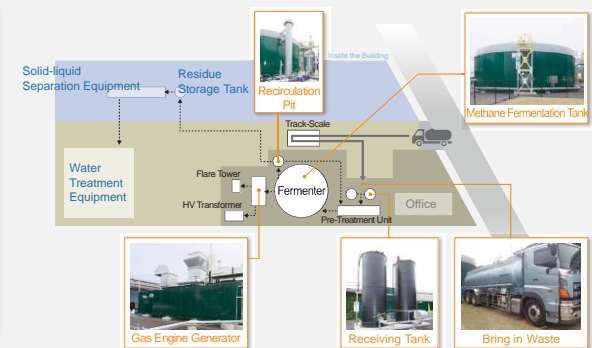


## Biogas power plant ~MF Power No. 1~

Material: Food Waste :17 t/day  
 Generating Capacity: 250 kW  
 Fermenter capacity:853 m3  
 Site area:1,000 m2



## MF POWER-1 | PLANT LAYOUT



# Renewable Energy Business

**Solar power generation**  
**8,945**MWh/year

**CO2 reduction**  
**4,772**t-  
**CO<sup>2</sup>/year**

※ FY2018 results

Location : Kagoshima2  
Rated power : 1,920kW  
Annual power generation : 3,043MWh



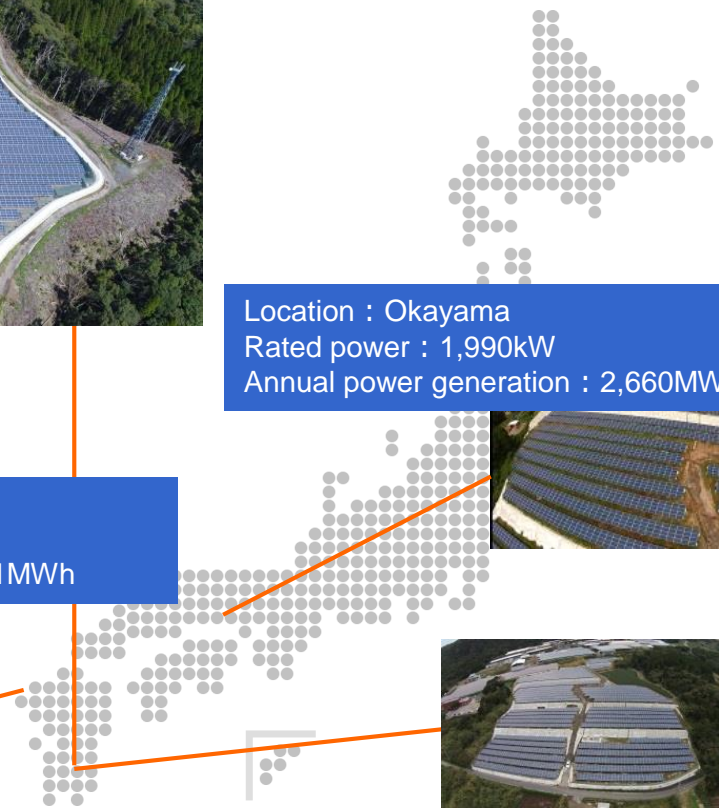
Location : Okayama  
Rated power : 1,990kW  
Annual power generation : 2,660MWh



Location : Kumamoto  
Rated power : 490kW  
Annual power generation : 701MWh



Location : Kagoshima  
Rated power : 1,990kW  
Annual power generation : 2,541MWh

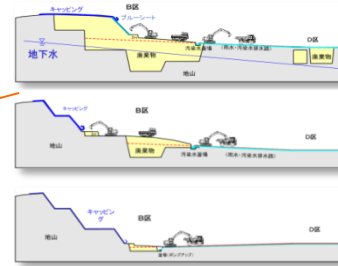


# **REMATEC Group Achievements**

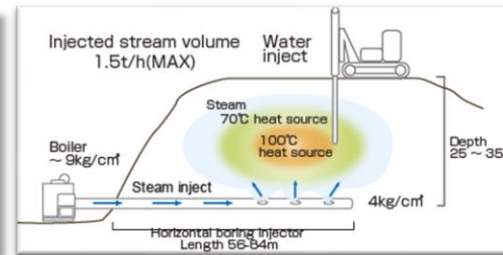
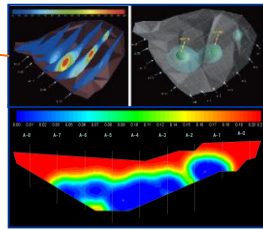


# Recovering illegal dumping site and waste recycling

Illegal dumping in Aomori and Iwate Prefecture  
 Illegal dumping waste amount: **reached to 1,100,000m<sup>3</sup>**



Fire fighting at the illegal dumping site



Removal project of the illegal dumping drums  
 @ 1chome Oono Otsu-shi , Shiga prefecture



## Great East Japan Earthquake Environmental Restoration Project (2011-2014)



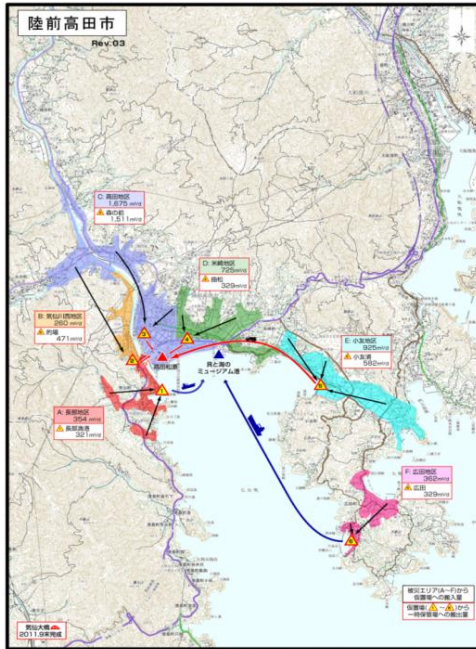
Earth and sand disaster environment  
restoration business  
@Hiroshima (2014-2015)



Earthquake Environmental Restoration Project  
@Kumamoto (2017)



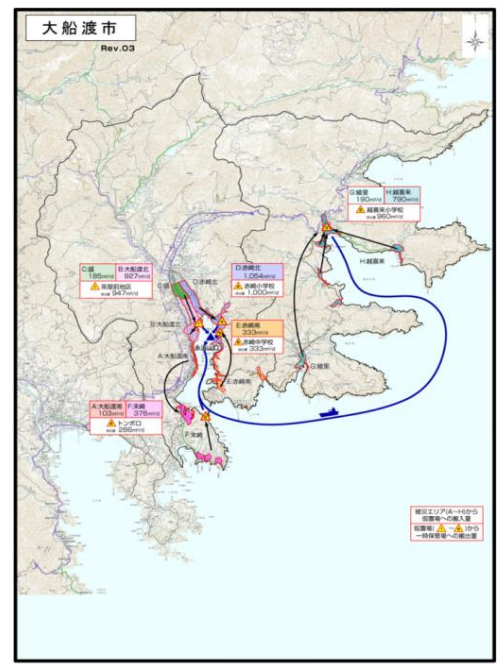
# Reconstruction supports after the Great East Japan Earthquake



Second sorting site @Ofunato



Second Sorting site @Rikuzentakada



# Reconstruction supports after the Great East Japan Earthquake

Salt removal of the disaster waste to realize the recycle operation



Waste Woods (before salt removal)



Waste Woods (after salt removal)

# **REMATEC Group Overseas Business**





# Establishment of a company “RKT” in Thailand

Signed the MOU  
on RDF pilot  
plant test in June  
2013.

Memorandum of Understanding  
on RDF Production from Municipal Solid Waste  
between  
SERVICO and REMATEC CORPORATION



**RDF Business**

Signed the MOU on  
RF pilot plant test in  
Sep. 2012.



**RF Business**



Operated the RDF pilot  
plant test in Aug. 2013.



**REMATEC & KSN**  
THAILAND

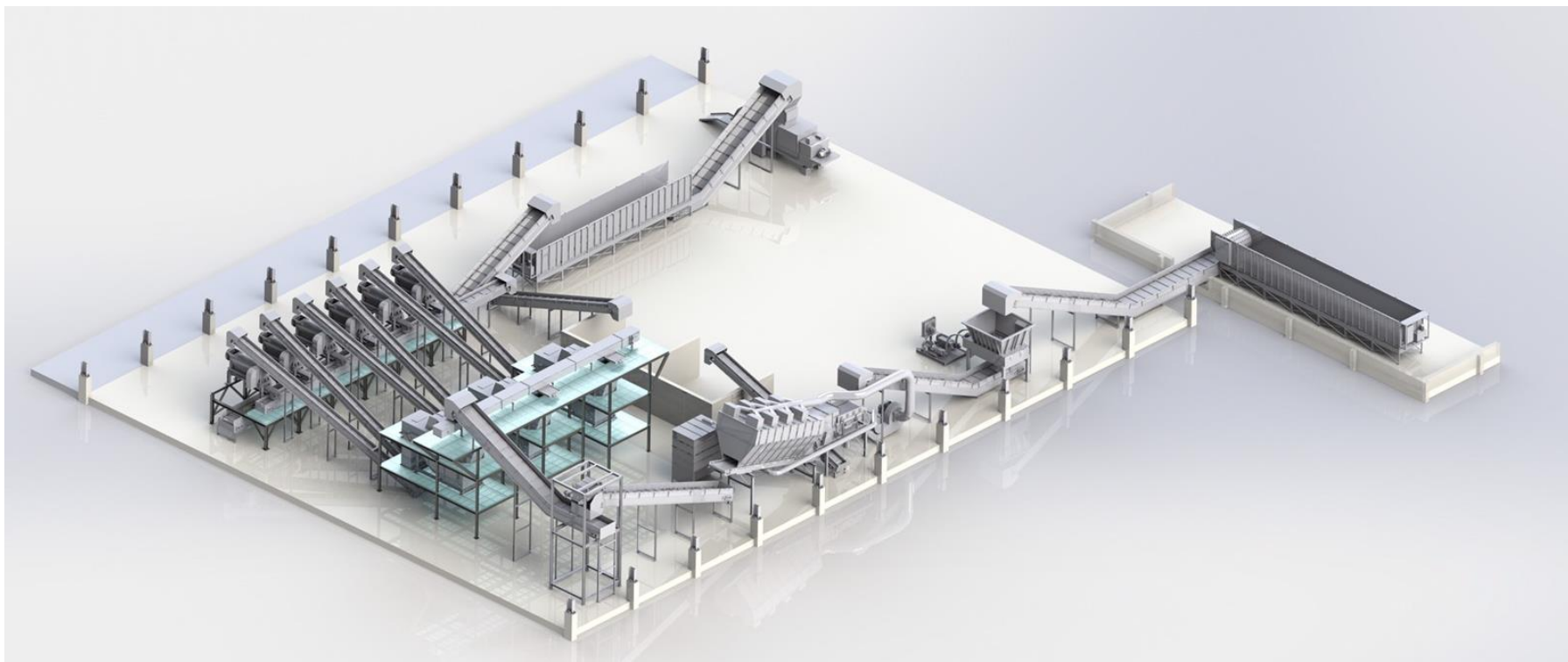
The Joint Company  
established in  
Sep.9<sup>th</sup>,2013.



Operated the RF pilot plant  
test in Aug. 2013.

<b>2008</b>	<ul style="list-style-type: none"><li>• Participate in Team E-Kansai as starting member</li></ul>
<b>2009</b>	<ul style="list-style-type: none"><li>• Exhibit our technology in Entech Pollutec Asia 2009</li></ul>
<b>2010</b>	<ul style="list-style-type: none"><li>• Exhibit our technology in Entech Pollutec Asia 2010</li><li>• Conclude a MOU between IEAT and Team E-Kansai</li></ul>
<b>2012</b>	<ul style="list-style-type: none"><li>• Conclude a MOU among DIW(Thailand), IEAT, Amata, Kinki METI and Team E-Kansai</li><li>• Investigation of actual conditions of industrial waste in Thailand (support from METI Japan)</li><li>• Field Test of RF Technology with SCI ECO (support from METI Japan)</li><li>• Investigation of actual conditions of municipal waste in Thailand (support from MOE Japan)</li><li>• Field Test of RDF Technology with SCI ECO (support from MOE Japan)</li></ul>
<b>2013</b>	<ul style="list-style-type: none"><li>• <b>Establish REMATEC &amp; KSN Thailand (RKT)</b></li></ul>
<b>2014</b>	<ul style="list-style-type: none"><li>• Conclude a MOU between SCI ECO &amp; RKT</li></ul>
<b>2015</b>	<ul style="list-style-type: none"><li>• F/S of MSW recycling project (support from NEDO Japan)</li><li>• <b>Establish GCS (Joint Venture company with SCI ECO)</b></li></ul>
<b>2016</b>	<ul style="list-style-type: none"><li>• Start construction of 1<sup>st</sup> Plant in Thailand</li></ul>

# RDF(Refuse Derived Fuel)Business



Site Area	8,000m <sup>2</sup>	(100m×80m)
Building Area	2,700m <sup>2</sup>	(45m×60m)
Processing Scale	420 t / d	(16h×約30t/ h )
Start of Operation	March 2017	

MSW<sup>\*(c)</sup>

Organic

Plastic<sup>\*(a)</sup>

Others



or

Landfilled (dug-up)  
Waste<sup>\*(c)</sup>

Organic

Plastic<sup>\*(a)</sup>

Others



## WS separator



Washing water  
or  
No-Washing water

RDF<sup>\*(d)</sup>

R-Organic

R-Plastic<sup>\*(b)</sup>

R-Others



### Separated Organic & Others

R-Organic

R-Plastic

R-Others

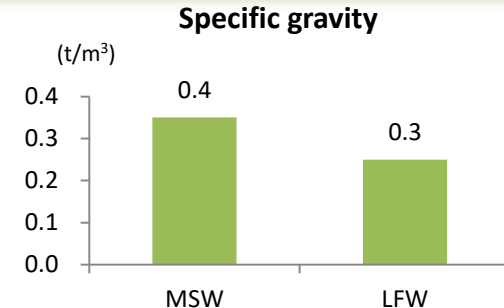
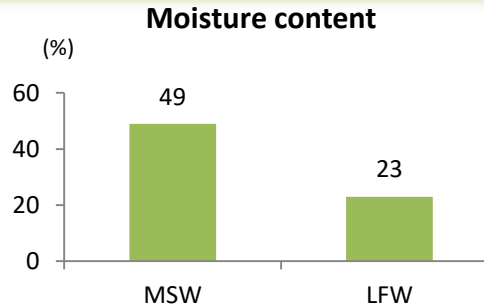
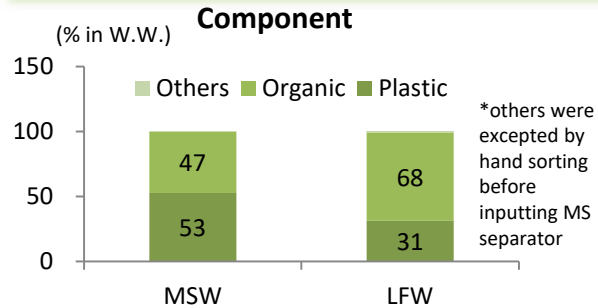


## Measurement item

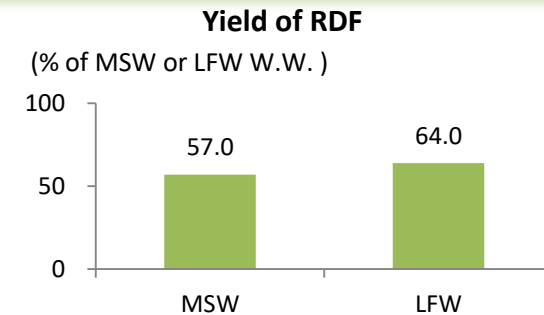
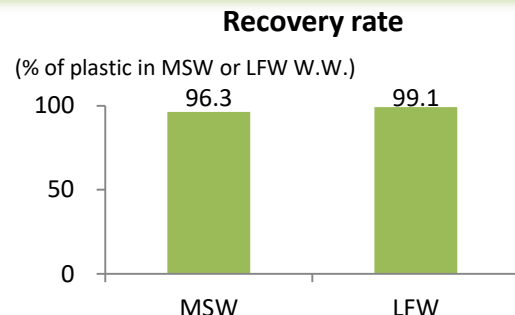
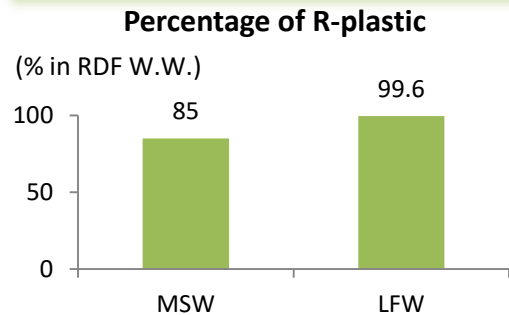
[1] Operation analysis

- 1 Percentage of R-Plastic (%) = [ R-plastic (b) ] / [ RDF (d) ]
- 2 Recovery rate (%) = [ R-plastic (b) ] / [ Plastic in MSW or LFW(a) ]
- 3 Yield of RDF (%) = [ RDF (d) ] / [ MSW or LFW (c) ]

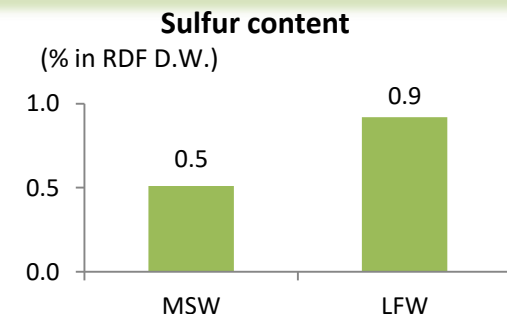
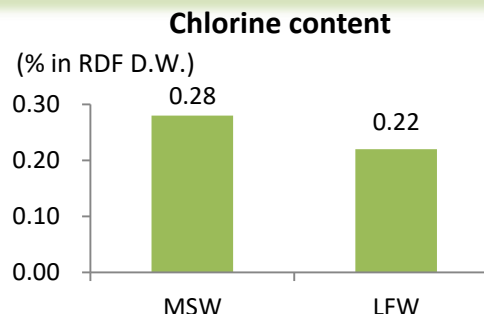
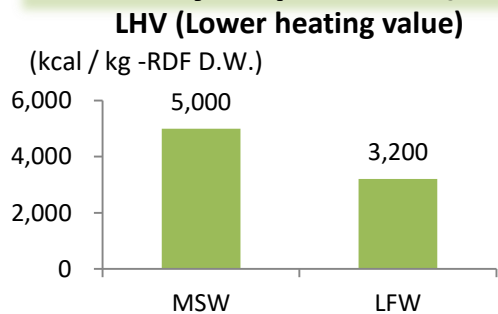
## Material analysis

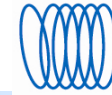


## Operation analysis



## Quality of product (RDF)





## RF Pilot Plant

## RDF Pilot Plant

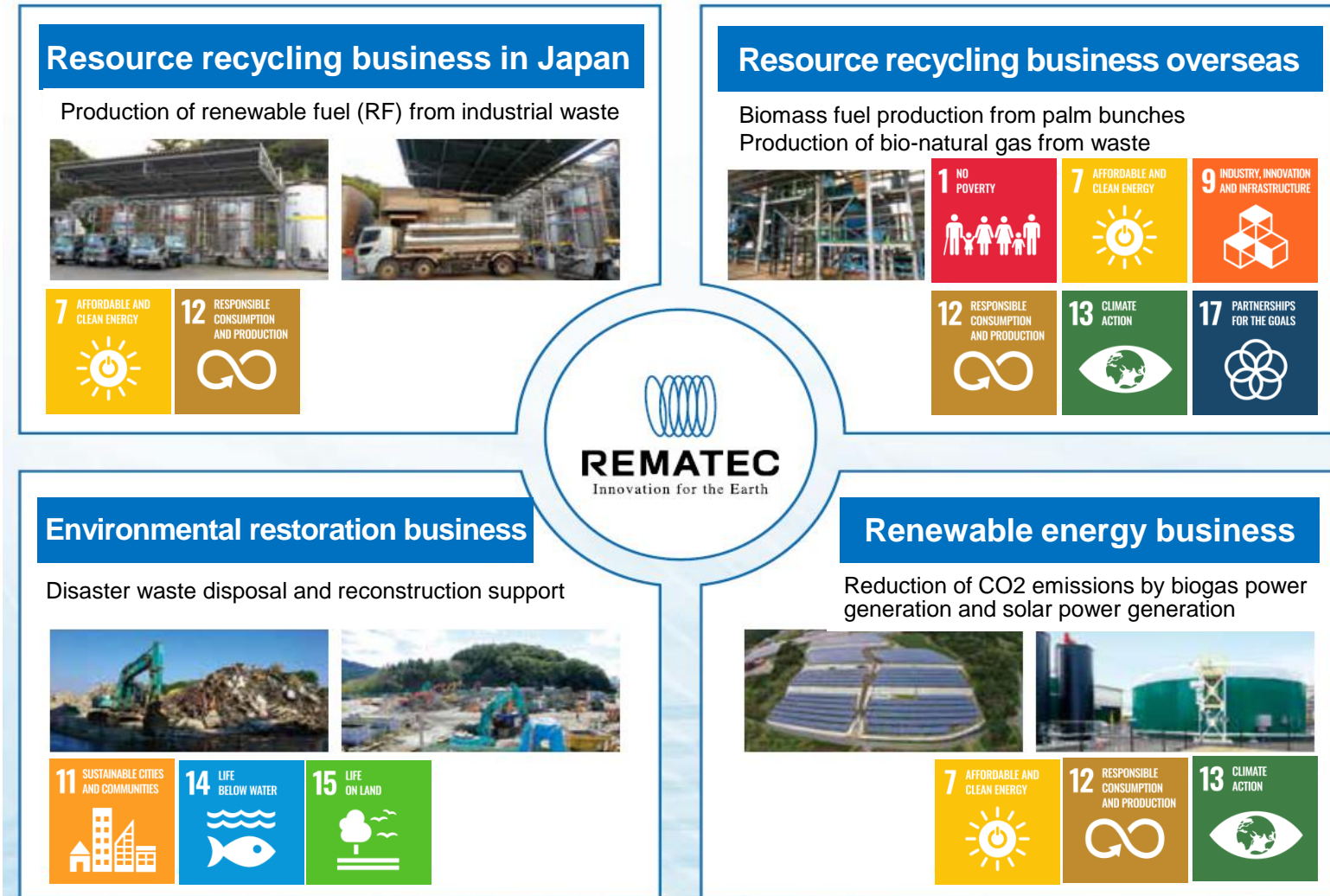


# **REMATEC Group Environmental Goals**



# Rematec Group SDGs

With reference to the SDGs Compass Guidelines, we mapped SDGs goals that are closely related to our business activities.





## Achieve goals through partnership



Disclosure of specific initiatives and reduction status on HP and CSR reports

report

Management integration

Considering a mechanism for managing and evaluating the progress of each group company by incorporating it into group management indicators

setting of the goal

Calculate CO2 emissions in line with SBT standards and set targets

Key projects



Relevance to business



# Supply chain emissions(2018)

Greenhouse gases in the entire supply chain are identified in Scope 1, 2, and 3 according to the GHG Protocol, an international calculation standard.



■ Changes in CO<sub>2</sub> emissions from business activities (scopes 1 and 2)



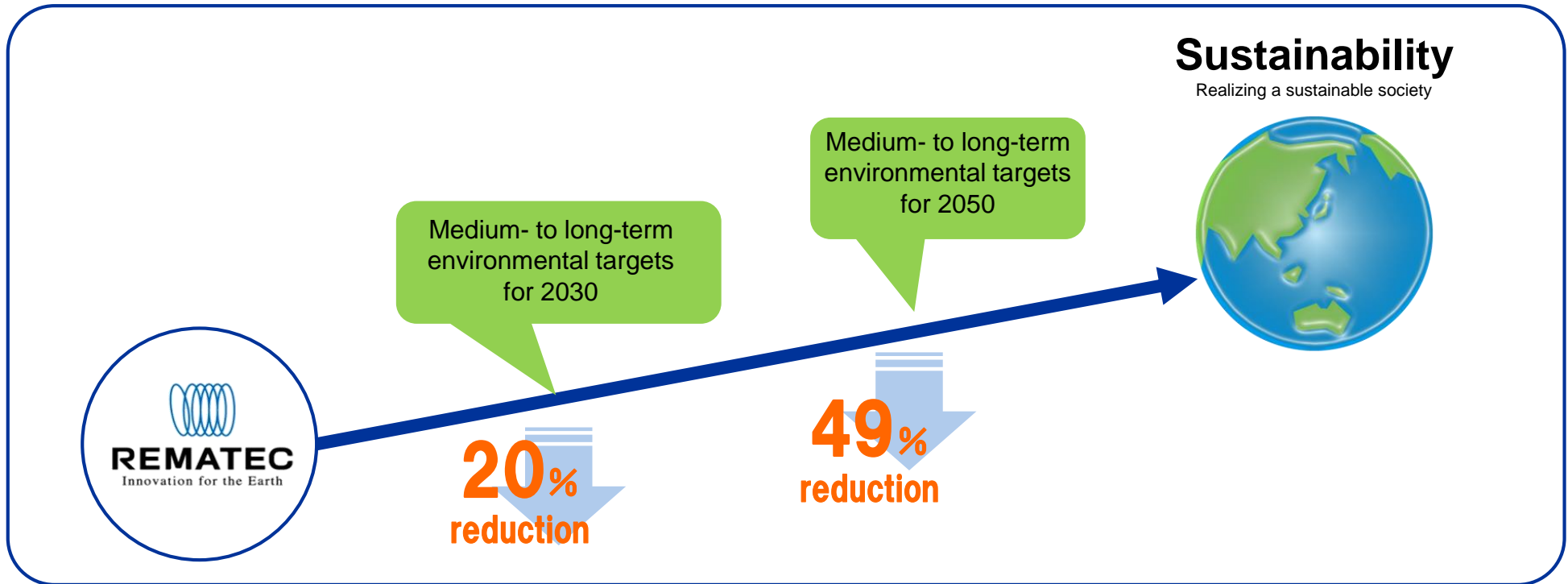
Obtained a guarantee after third-party verification by Sokotec Certification Japan Co., Ltd. (October 2019)

# Medium- to long-term goals of the REMATEC Group

**20% reduction in CO2 emissions by 2030**

**49% reduction in CO2 emissions by 2050**

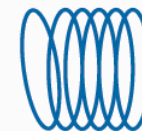
※CO2 emissions (Scope 1, 2) : 2017 comparison



	2017	2030	2050
	CO2 Actual emissions	Target CO2 emissions	Target CO2 emissions
groupTotal number ( t -CO <sup>2</sup> )	3,702.4	2,962.0	1,888.2

# SUSTAINABLE DEVELOPMENT GOALS

*Thank You for Listening ... !*



**REMATEC**  
Innovation for the Earth