

International Forum on SDGs for Regional Revitalization 2021

## **Overseas projects and renewable energy**

**- A company from Shimane trying its hand in the fields of environment and renewable energy in Latin America -**

**December 2020**



The three circles in the logo of NEONITE Corporation represent water, atmosphere, and soil.



# 1. Outline of business

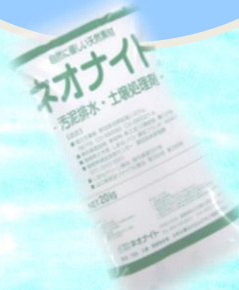
## Water/sludge treatment

Industrial wastewater, wastewater from temporary buildings, reservoir dredging, sledge dewatering



## Chemicals

Chemicals for treating water and hazardous substances, education materials, decontaminants



## Renewable energy

Woody biomass gasification power generation, bioethanol production equipment



# NEONITE

## Soil treatment

Insolubilization, soil washing



## Decontamination of radioactive substances

Treatment of radioactive water, decontamination and testing of wood, decontamination of reservoirs



## Analysis/survey

Environmental survey on water quality and soil radioactive substances



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## 2. Environmental SDGs

### 1) Track record in Japan

Small to large-scale projects – both public and private



Anti-radioactive substance measures targeting reservoirs and lakes  
Fukushima Prefecture  
Removal of radioactive substances



Insoluble treatment of arsenic-contaminated soil  
Private hospital  
Insoluble treatment of arsenic-contaminated soil on the premises of a hospital

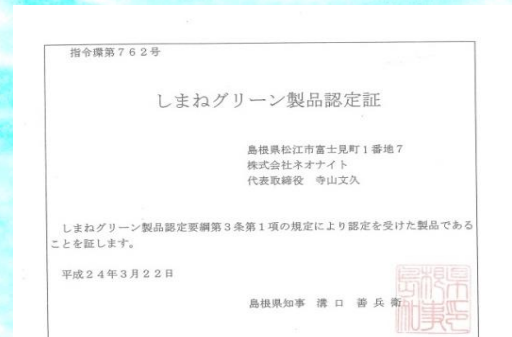


Rainwater and muddy water treatment for site-preparation work  
Chugoku Electric Power  
Construction of the Shimane Nuclear Power Plant Unit 3

### 2) Certification and evaluation of the NEONITE method, adoption for projects

Reliability increased by technical evaluation by national/local govts

- NETIS CG-080027-A, Ministry of Land, Infrastructure, Transport and Tourism
- New material/method, 12 “ken-so-gi” no. 137, Tokyo Metropolitan Government Bureau of Construction
- Shimane-hatsu construction brand, A0407
- Construction technology evaluation, STC-2002-0001, Shimane Construction Technology Center
- Ministry of Economy, Trade and Industry, Temporary Law Concerning Measures For the Promotion of the Creative Business Activities of Small and Medium Enterprises, Shimane Prefectural Governor Certification no. 70
- Shimane Prefecture comprehensive subsidy program for industry creation
- Ministry of Economy, Trade and Industry, 2006 and 2007 commissioned project on regional consortium research
  - Decomposition treatment technologies for dioxin and PCBs
- Shimane Prefecture, Shimane Green Product, “Shi-rei-kan” no. 579  
(\*Green Purchase Program-certified Product)
- Yamaguchi Prefecture, Certified recycled products, no. 285 and 286  
(\*Green Purchase Program-certified Product)
- The Cabinet Office and the Japan Atomic Energy Agency  
2011 Decontamination Technology Demonstration Test Project:  
Evaluated as an **immediately applicable technology** (6 companies out of 360 applicants)
- Ministry of the Environment, 2012 Decontamination Technology Demonstration Project:  
Adopted (21 companies/250 applicants)
- Fukushima Prefecture, Utsukushima Eco Recycled Product, no. 24-82  
(\*Green Purchase Program-certified Product)



#### 除染剤〈放射性物質の除去〉

24-82 ネオナイトCs【除染剤】



株式会社ネオナイト  
事業所 いわき市小名浜野田字田中106  
連絡先 0246-58-8472  
原材料に使用する循環資源 【石灰灰  
県内で発生する石灰灰(フライアッシュ)を原料とした除染剤です。放射性物質を吸着、除去することができます。

The only certified decontamination product from Fukushima Prefecture

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### 3. Overseas projects in the environmental field

Past overseas projects				
Project name	Orderer	Project year	Country/Region	Details
Sales of a PCB decomposition plant	Chonbuk National University Research Center	2008	South Korea/Asia	<ul style="list-style-type: none"> <li>- Legal control of Polychlorinated Biphenyl (PCB) started.</li> <li>- Commissioned to manufacture a plant that decomposes insulating oil containing PCBs and transfer the technology.</li> <li>- The plant and the decomposition agent were produced; the technology and knowledge were transferred.</li> </ul>
2 <sup>nd</sup> JICA-Private Sector Joint Latin America Investigation Team	JICA	2013	Peru Brazil/Latin America	<ul style="list-style-type: none"> <li>- Selected as a member of the investigation team that deliberates on commercial expansion to Latin America.</li> <li>- Conducted field inspections and evaluated the commercial potential of water treatment equipment.</li> <li>- Presence of the community of Japanese Peruvians is an advantage.</li> <li>- Collaboration with the feasibility studies and demonstration and other commissioned projects of JICA and JETRO will be promoted.</li> </ul>
Knowledge Co-Creation Program (Young Leaders) – “Development of Small and Medium Enterprises in (Spanish speaking) Latin American countries” course	JICA	2014	Latin America/Japan	<ul style="list-style-type: none"> <li>- Conducted lectures on management issues, government measures, and realities of business environment related to small and medium enterprises in Japan.</li> <li>- Young leaders in Latin America were provided with basic training, in which they learned about technologies with the aim of improving their knowledge and awareness on problem solving.</li> <li>- Participants were interviewed about circumstances in their home countries; frank discussion and information exchange occurred.</li> </ul>
1 <sup>st</sup> Basic Survey on the Promotion of Small and Medium Enterprises	JICA	2014	Peru/Latin America	<ul style="list-style-type: none"> <li>- Feasibility of water treatment business was investigated.</li> <li>- Restrictions on wastewater treatment became stricter in Peru.</li> <li>- Concluded that our technology and products have high potential in Peru.</li> </ul>
2 <sup>nd</sup> course on “wastewater treatment technologies”	JICA	2015	Latin America/Japan	<ul style="list-style-type: none"> <li>- Engineers in Latin America were provided with training on water environment issues and wastewater treatment.</li> <li>- Technical training on various wastewater treatment technologies that use the NEONITE method (featuring a high-function treatment agent) was provided.</li> <li>- Japan’s experiences and current situation related to wastewater control were explained.</li> </ul>
Program for Support of Overseas Development by Small and Medium Enterprises – Dissemination/Demonstration Project	JICA	2016	Peru/Latin America	<ul style="list-style-type: none"> <li>- Demonstration of a portable/package-type multi-water treatment plant started.</li> <li>- In collaboration with Peruvian government agencies and local businesses, the plant was demonstrated at facilities in various industries.</li> <li>- Demonstration was completed; the plant was transferred to the National University of San Marcos.</li> </ul>
3 <sup>rd</sup> course on “wastewater treatment technologies”	JICA	2015	Latin America/Japan	<ul style="list-style-type: none"> <li>- Engineers in Latin America were provided with training on water environment issues and wastewater treatment.</li> <li>- Technical training on various wastewater treatment technologies that use the NEONITE method (featuring a high-function treatment agent) was provided.</li> <li>- Japan’s experiences and current situation related to wastewater control were explained.</li> </ul>
Japan Internship Program	JETRO	2016	Peru/Latin America	<ul style="list-style-type: none"> <li>- The actual situation was identified and core information was obtained through a long-term survey.</li> <li>- A network with local businesses was formed.</li> <li>- Laws and regulations on trade were studied.</li> </ul>



# 4. Overseas projects in the environmental field

## 1) Knowledge Co-Creation Program (Young Leaders) – “Development of Small and Medium Enterprises in (Spanish Speaking) Latin American Countries” course

Young leaders from Latin America participated in a basic training program, in which they learned about technical experiences and technologies that have accumulated in Japan through lectures. Following the lectures, a meeting was organized, where they were asked about the situation in each country and frankly discussed and exchanged information.



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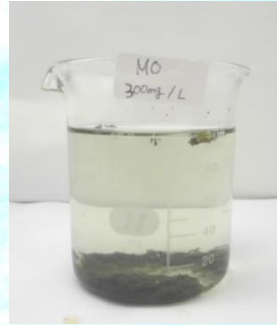


## 2) 2nd JICA-Private Sector Joint Latin America Investigation Team, 1st Basic Survey on the Promotion of Small and Medium Enterprises

Our technologies are highly applicable.



A wastewater sample from an industrial park, provided by SEDAPAL



Treated water

**Determined that our products and technologies have high potential for commercial success in Peru.**

With Ambassador to Peru (left), NEONITE's CEO Fumihisa Terayama requested his support for our development in Peru.



A joint study with a local government agency.



Item	Unit	Peru			Japan	Industrial park's wastewater provided by SEDAPAL		
		Thresholds for imposition of additional cost on plants and other facilities	Thresholds for stopping the use of sewage	Standards for post-treatment wastewater at sewage treatment facilities	Wastewater standards	Result	After treatment	Evaluation
COD	mg/l	1,000		200	160 (daily average 120)	1,500	43	Standards were exceeded in raw water but were met in treated water
SS	mg/l	500		150	200 (daily average 150)	514	35	
pH			6-9	6.5-8.5	5.8-8.6 (other than sea areas) 5.0-9.0 (sea areas)	7	7.3	Within the standards

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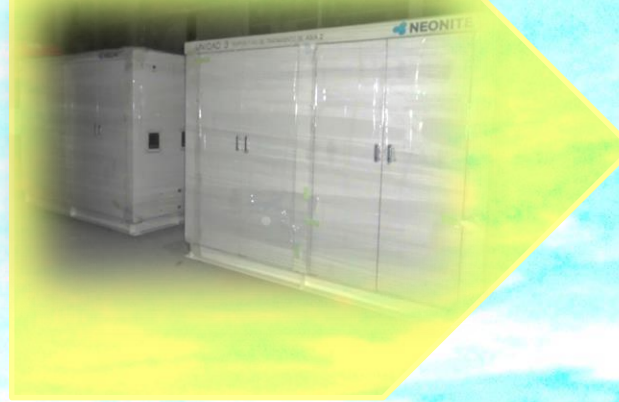
### 3) Program for Support of Overseas Development by Small and Medium Enterprises – Dissemination/Demonstration Project (1)

The aim of this demonstration project is to promote overseas development of our technologies and products. The NEONITE plant transferred to Peru will be a disassembly/portable type to facilitate its widespread use in the country.

**Manufactured in our plant**



**Packaged transportation**



**Transported to Republic of Peru**



**Used for student education after being donated**



**Demonstrated using industrial wastewater at universities**



**Demonstrated at each plant**



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### 3) Program for Support of Overseas Development by Small and Medium Enterprises – Dissemination/Demonstration Project (2)

During the demonstration period, seminars and PR events for companies and organizations are organized for promotion.



conferencia sobre  
tratamiento de aguas  
residuales



### 3) Program for Support of Overseas Development by Small and Medium Enterprises – Dissemination/Demonstration Project (3)

With the representatives of Japanese government agencies and the Japan International Cooperation Agency (JICA), university presidents, and other leading figures, a grand ceremony was successfully held, which included an awards ceremony, a party with Japanese Peruvians, and a reporting session.





#### 4) Knowledge Co-Creation Program (Group and Region Focus) – 2<sup>nd</sup> and 3<sup>rd</sup> courses on “wastewater treatment technologies”

As part of training for engineers in Latin America on water environment issues and wastewater treatment, a technical training program on wastewater treatment technologies that use the NEONITE method was provided.



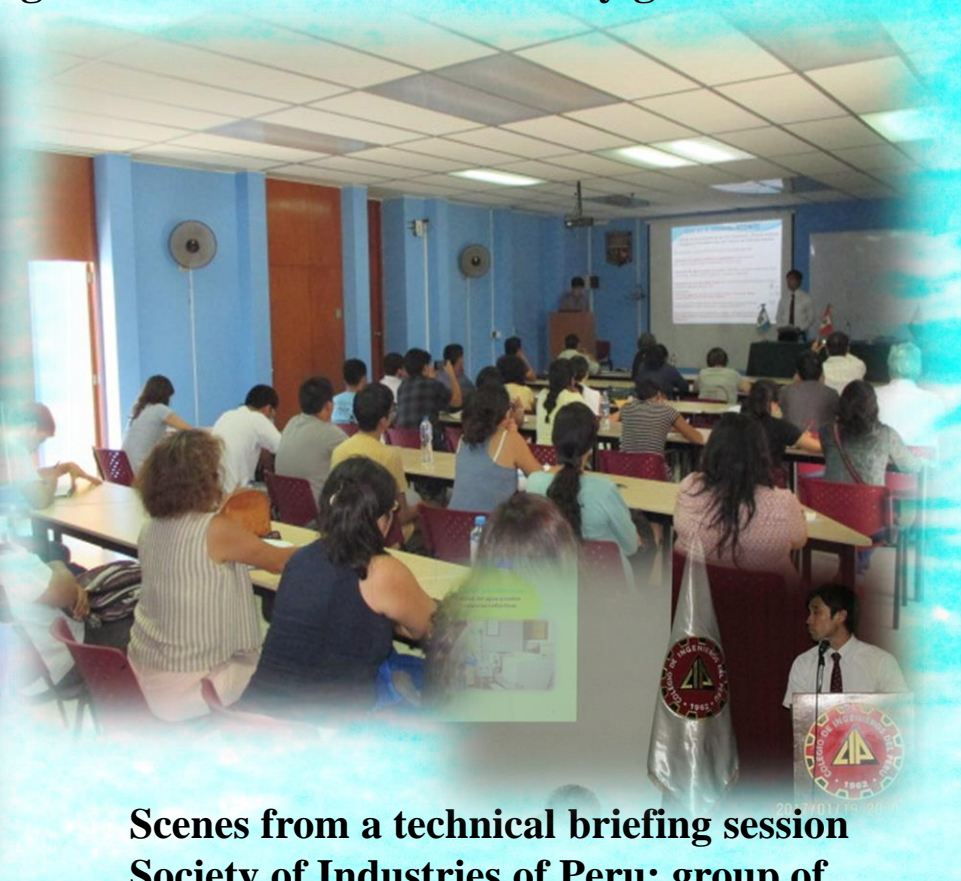


## 5) Japan Internship Program (1)

This program aims to foster personnel who wish to play an active role in leading overseas projects and expanding business to new fields. For small and medium enterprises, advantages of this program include cost reduction through subsidies and thorough prior-training provided to their staff, together with generous healthcare and safety guarantees.



Participated in the local exposition  
“EXPO AGUA (WATER EXPO)”  
Exhibitions by water treatment  
equipment makers



Scenes from a technical briefing session  
Society of Industries of Peru: group of  
industrial companies  
Presentation on NEONITE products and  
technology

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## 5) Japan Internship Program (2)

The aims included identifying the actual situation and obtaining core local information through a long-term survey, conducting a survey on the current situation of wastewater treatment in Peru, conducting a market survey on flocculants, building a network with local companies, and conducting a study on trade-related laws and regulations.



**Everyday work at the Society of Industries**  
**Facilities:** A separate room with the Internet  
**Commuting:** 10-minute walk



**Field study at a beverage maker**  
**Aim:** A survey at a water treatment facility  
**Finding:** High running cost

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## 4. About SDGs Regional Revitalization Projects

### 1) Renewable energy – Bioethanol project

We develop, manufacture, and sell bioethanol plants that use sugarcane (bagasse) and sorghum (type of sugarcane) as raw materials.

The first bioethanol plant adopted for a subsidy program in Okinawa Prefecture

新型高効率バイオエタノール製造装置  
ネオナイトリアクター NRS-300-B131-SUS  
平成25年 3月完成

株式会社  
NEONITE  
ネオナイト

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## 2) Renewable energy – Woody biomass gasification power generation & co-generation project (1)

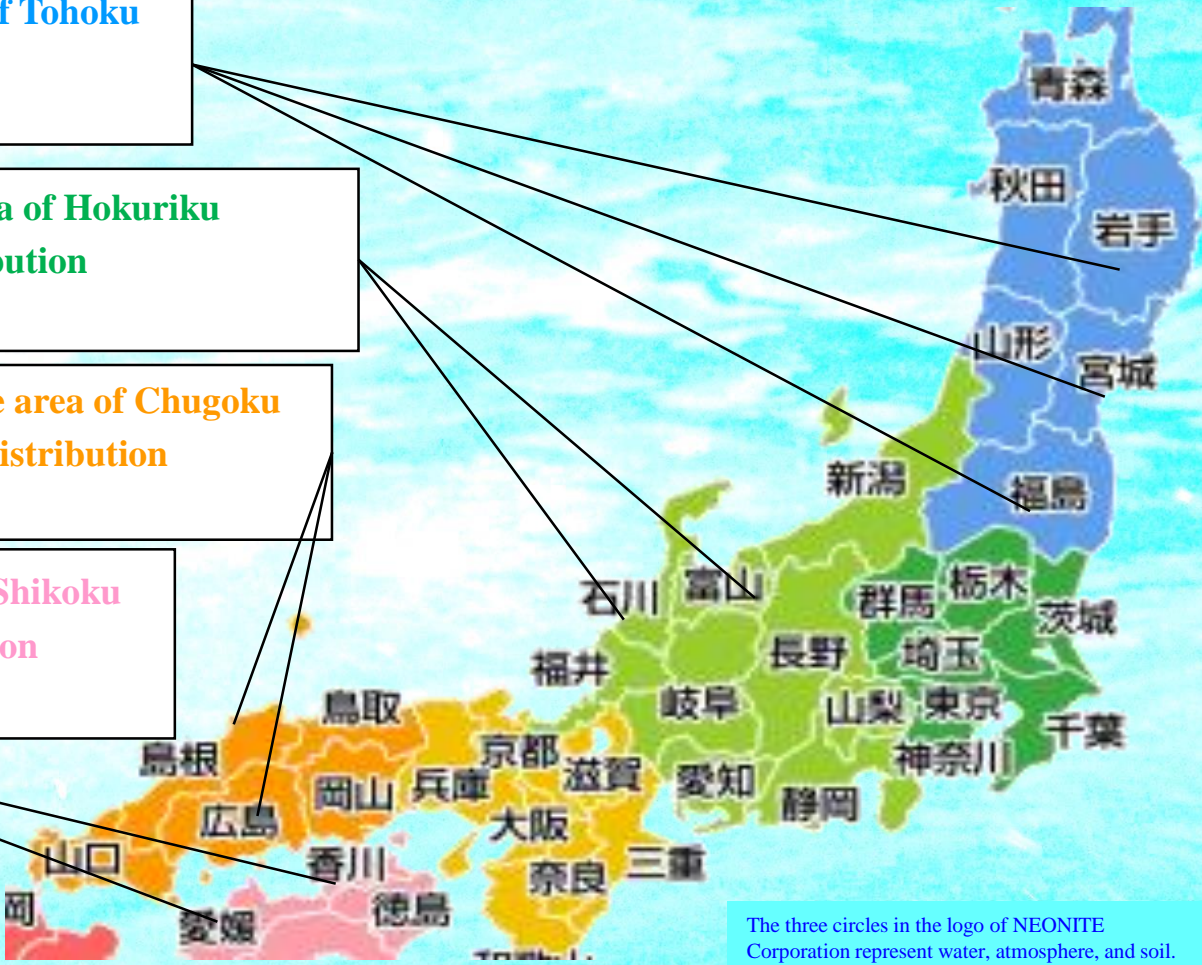
This project is a part of our efforts for nationally disseminating a new power generation system that converts woody biomass to electricity and heat using our state-of-the-art technology. Our ultimate goal is to revitalize regional areas by creating new industries where regional cities, hilly and mountainous areas, and underpopulated areas become energy suppliers, provide employment opportunities, and recycle local wood for energy. Currently, we are pushing the project with the goal of constructing 20 plants throughout the country.

**Tohoku region:** Within the service area of Tohoku Electric Power Network  
**Planned construction sites:** 7–10

**Hokuriku region:** Within the service area of Hokuriku Electric Power Transmission and Distribution  
**Planned construction sites:** 2–4

**Chugoku region:** Within the service area of Chugoku Electric Power Transmission and Distribution  
**Planned construction sites:** 5–8

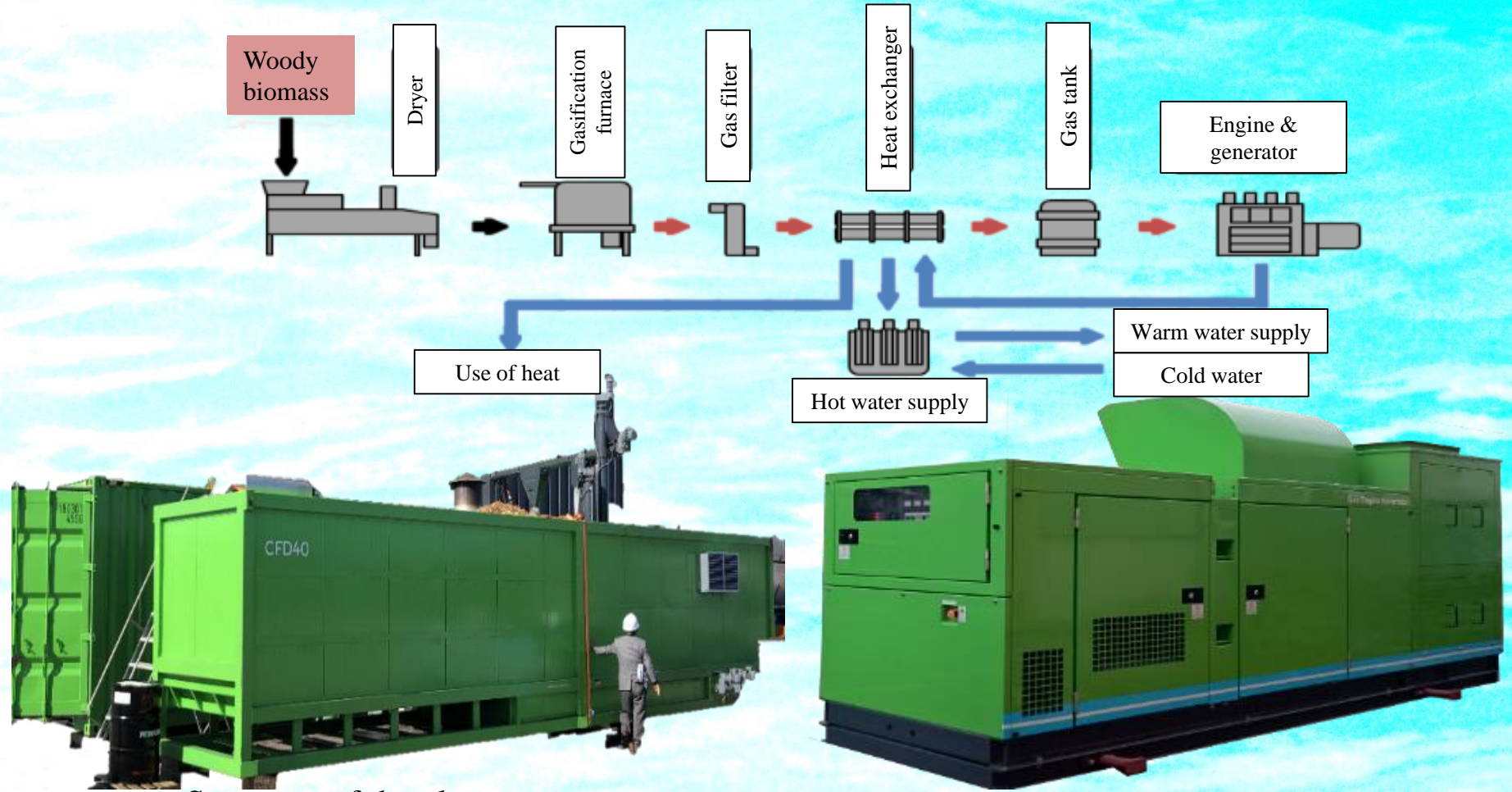
**Shikoku region:** Within the service area of Shikoku Electric Power Transmission and Distribution  
**Planned construction sites:** 2–4



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# 2) Renewable energy – Woody biomass gasification power generation & co-generation project (2)

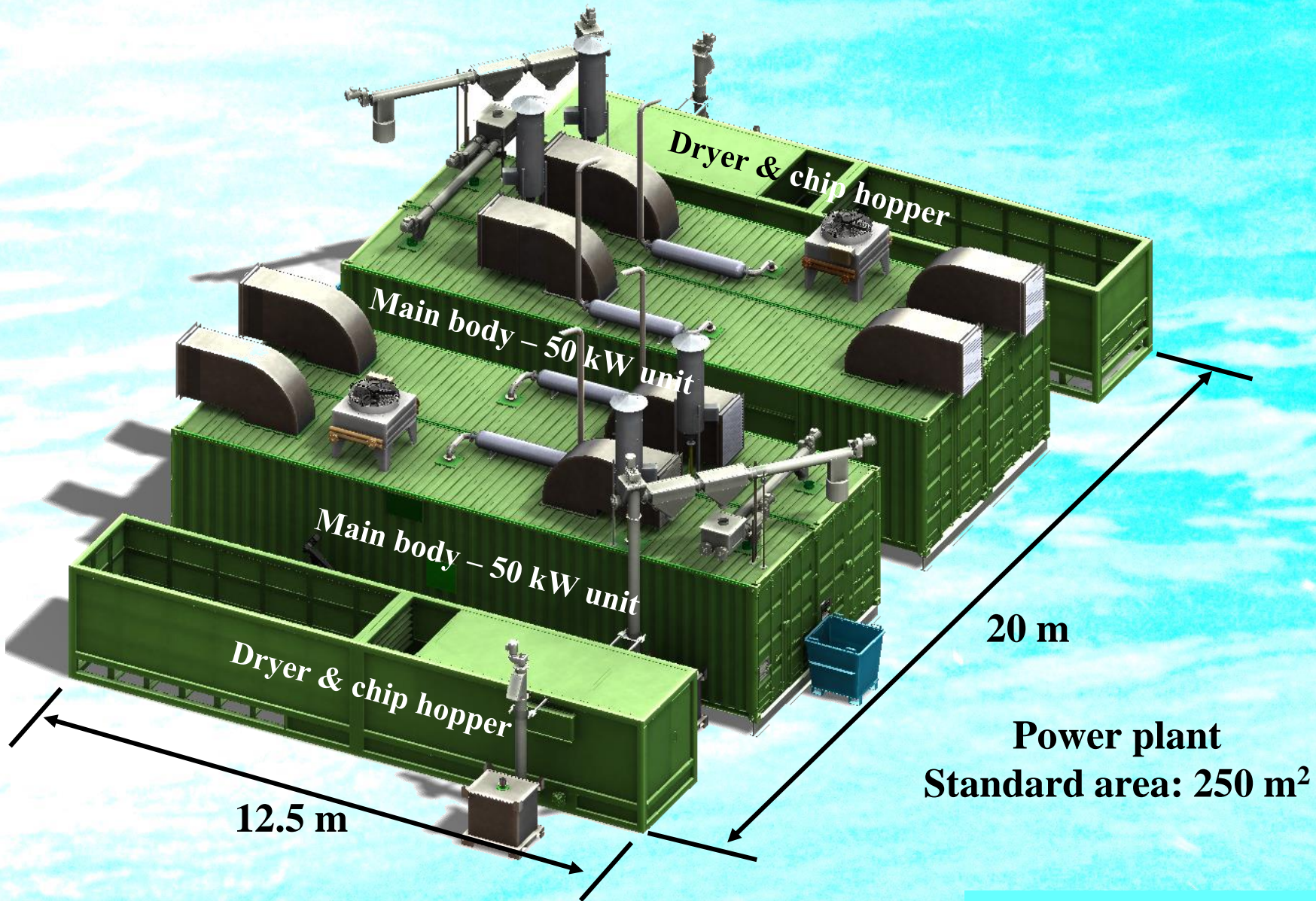


Summary of the plant  
 Power output: 200 kW (50 kW × 4 systems)  
 With a built-in wood chips dryer  
 Fuel: Wood chips (with water content of 10% or less)  
 Annual capacity – around 1,600 t  
 Required area for installation: 2,000 m<sup>2</sup> (250 m<sup>2</sup> for the plant itself)



## 2) Renewable energy – Woody biomass gasification power generation & co-generation project (3)

Power plant – Standard 200 kW generator (Image illustration)





# 2) Renewable energy – Woody biomass gasification power generation & co-generation project (4)

Two ministries (MoE & MAFF) – Project for promoting the creation of model regions using woody biomass energy

Contractor: NEONITE Corporation – A demonstration plant for wood decontamination/recycling and woody biomass gasification power generation

## Project outline

Candidate site: Kusaike, Maedagawa, Sukagawa City, Fukushima Prefecture (Iwase Farm)

Outline of the demonstration facilities:

- Power (or heat) output 150 kW/h
- Wood decontamination capacity 500 kg/h
- Wood radiation monitoring capacity 1 wood/minute
- Demonstration production of non-radioactive lignophenol from decontaminated wood



### 1. Purpose of the project

The aims are to utilize local wood currently unutilized due to radioactive contamination in Fukushima Prefecture, which enjoys superior woody biomass supply and materials production capacities, to build an advanced model of woody biomass gasification power generation system, potentially replacing nuclear power generation as a base-load power source, to revitalize the regional economy by advancing primary industries including the forestry industry, and thus to create employment opportunities, thereby breaking the status quo in which many people are still forced to evacuate.

### 2. Outline of the project

As a model case for radiation-affected regions, the Fukushima Forest Restoration and Recovery Model will be developed and demonstrated where felling, materials production, screening of wood (testing for the presence of radioactive substances), cleaning and decontamination of contaminated wood, and woody biomass gasification power generation are integrated. An analytical facility will also be built on the premises to monitor radioactive substances in real-time.

### 3. Effects of the project

- Traceability for wood distribution is established using high-precision, high-speed wood radiation monitoring equipment, enabling safe and secure distribution of wood.
- Decontamination of contaminated wood allows the reduction and recycling of radioactive waste.
- High-efficiency woody biomass gasification power generation system is disseminated, its nationwide dissemination is promoted as small-scale distributed woody biomass gasification power generation systems.

## Project details by fiscal year

### ○ Fiscal 2013

- A regional council was established to promote woody biomass use through coordinated efforts by various industries, businesses from other regions, and local government.
- A demonstration plant was built to demonstrate wood testing, decontamination, and gasification power generation.
- Exposure doses were surveyed during felling and material processing.

### ○ Fiscal 2014

- The plant demonstrated in 2013 was improved to develop a higher efficiency decontamination & power generation system and data were collected.
- The facilities were operated for a long period to monitor radioactive substances and demonstrate the stability of the woody biomass gasification power generation system.

### ○ Fiscal 2015

- Development of a woody biomass utilization plan by local government was supported.
- A small-scale distributed woody biomass gasification co-generation system was promoted.
- A report summarizing the three-year project was produced.

Creation of a woody biomass utilization model region