

Guide map



Facility Overview

Name of Facility	East Tottori Prefecture Wide Area Administrative Management Association Waste Incineration Plant Limpiar INABA
	Limpiar INABA is a combination of limpiar, which means clean in Spanish, and Inaba in eastern Tottori Prefecture.
Location	925 Kawaharacho Yamate, Tottori City, Tottori Prefecture
Processing method	Continuously operated stoker-type incinerator (with waste heat boiler)
Capacity	240ton/day (furnace: 120ton/dayx2units)
Site area	43,407.66m ²
Business operator	Business entity East Tottori Prefecture Wide Area Administrative Management Association Design and Construction Supervision TOWA Technology Corporation Design/Construction/Operation JFE Engineering Corporation



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リンピアーイナバ
 Limpiar INABA



East Tottori Prefecture Wide Area Administrative Management Association



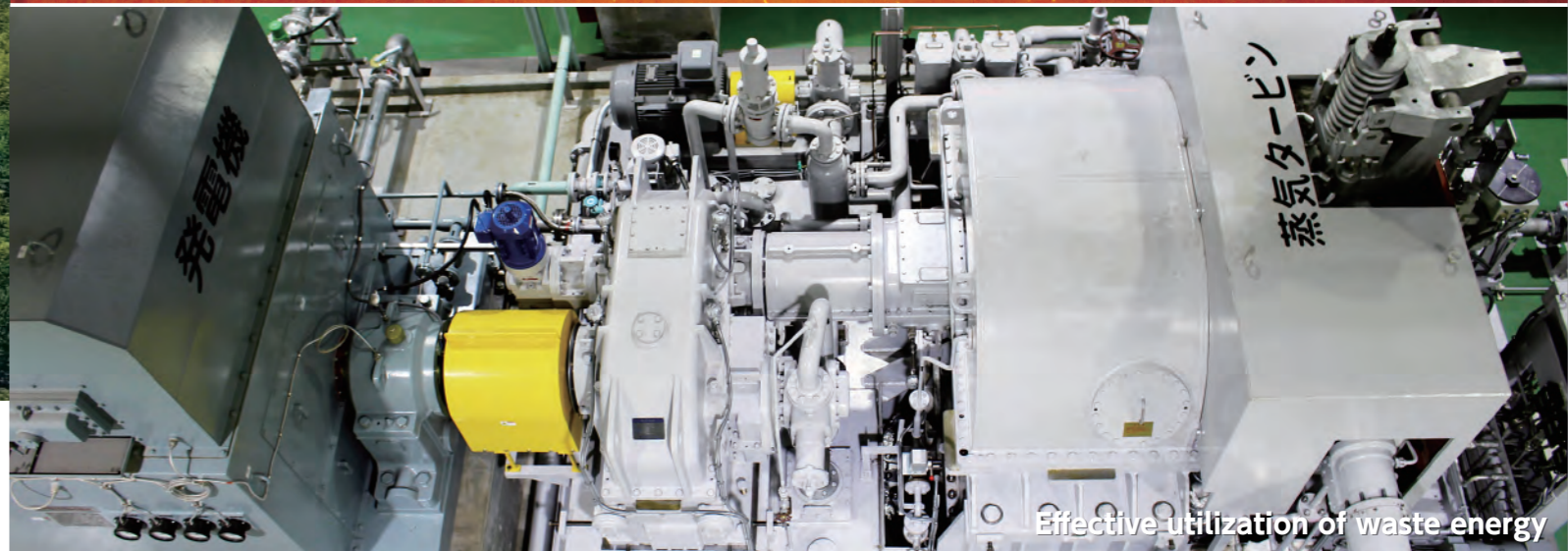
Safe and stable Waste Disposal and thorough Environmental Conservation Measures

Introduction

The combustibles processing facility Limpia INABA is operated by this association based on the Waste Treatment Wide Area Implementation Plan revised in August 2006, as a wide-area treatment facility, covering one city and four towns in the eastern part of Tottori Prefecture; Tottori City, Iwami Town, Chizu Town, Wakasa Town, Yazu Town. With cooperation of the local residents in the Kunifusa district of Kawaharacho, Tottori City, we began construction in August 2019, and were able to complete it in March 2023.

Limpia INABA uses a high-performance grate-type incinerator with a trustworthy and reliable track record, which can safely and stably dispose up to 240 tons of waste per day and has introduced the latest technology in exhaust gas treatment equipment to take thorough environmental conservation measures. It can also be used as an evacuation center because it is a strong building that will not collapse even in an earthquake with a seismic intensity of 7 and it generates electricity using the heat generated by incinerating waste. As an environmental learning facility, it incorporates experience-based learning facilities, universal design, is barrier-free, and can be used as a place where anyone can easily learn about environmental issues. In addition, to create a sense of attachment to the local community, the waste dump door and administration building are designed in the image of the Tottori Sand Dunes, and local materials and traditional crafts are incorporated into the interior and furniture of the facility.

Going forward, we will continue to strive to maintain, manage, and operate Limpia INABA as a facility that will play a role in forming a recycling-oriented and decarbonized society in the eastern region of Tottori Prefecture, and as a safe and secure facility that local residents can be familiar with and proud of.



Effective utilization of waste energy



Use as a shelter

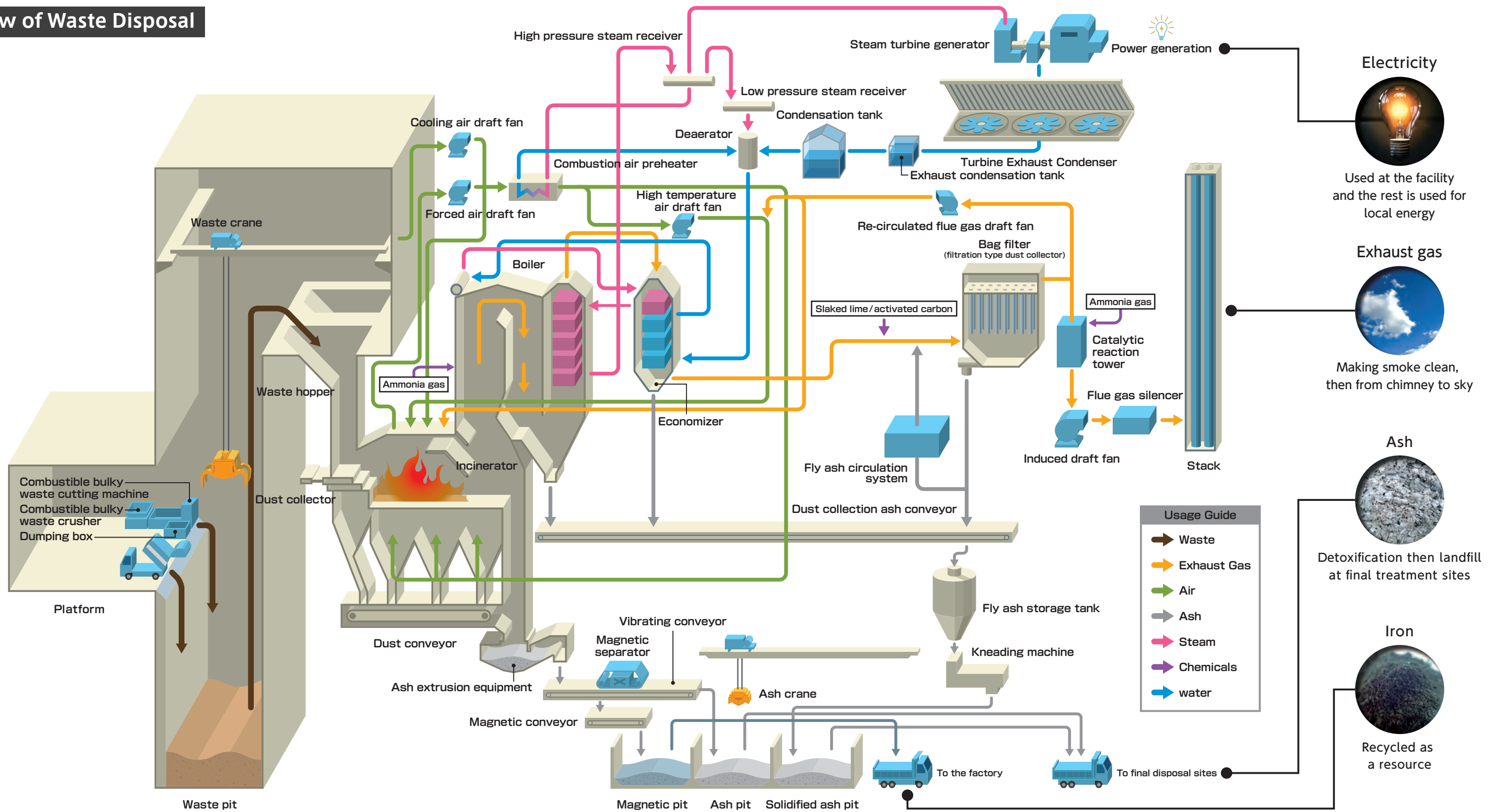


Disaster stockpile



Experiential learning facilities

Flow of Waste Disposal



Combustible waste from homes and businesses in one city and four towns in the eastern part of Tottori Prefecture is collected by refuse trucks and brought to the platform of Limpiar INABA. Waste is stored in the Waste Pit and completely burned in the Incinerator. Burned waste is reborn as safe and clean materials and returned to the sky, towns and seas. At Limpiar INABA, we generate electricity using the high-temperature gas that is emitted when waste is burned. It is a waste treatment facility as well as a facility that produces energy.

Waste Flow → Waste collected in the waste pit is thrown into the waste hopper by the waste crane, and then incinerated in the incinerator. The odor inside the waste pit is also sent to the incinerator as combustion air, where it is completely burned together with the waste to decompose the odor.

Steam Flow → Using the heat from burning waste, the steam created in the boiler is sent to the steam turbine generator to generate electricity. Electricity is mainly used at the facility, and surplus electricity is sold. The steam turns back into water and feeds the boiler.

Flow of Exhaust Gas → The high-temperature combustion gas emitted from the incinerator is cooled through the boiler and economizer, and the harmful substances contained in the exhaust gas are neutralized, removed, and filtered to become a clean state, which is discharged from the chimney.

Ash flow → Waste burned in an incinerator becomes incineration ash. Fly ash discharged from boilers and economizers is stabilized with chemicals. The incinerated ash is landfilled at the final disposal site.

Main equipment

A Weighing Building



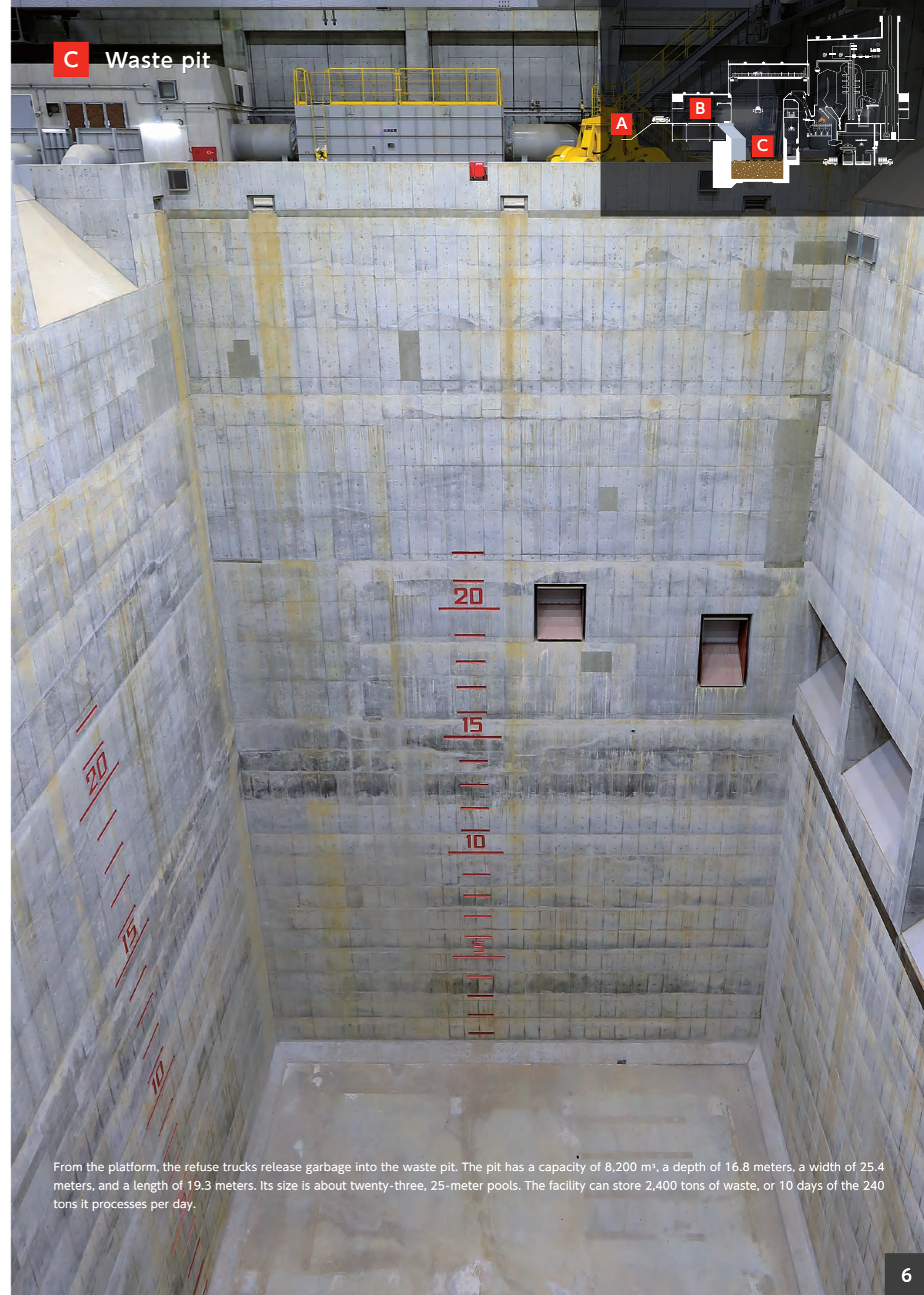
Refuse trucks weigh themselves on weighing platforms in the weighing building. The amount of waste actually brought in is measured from the difference between the weight, when the waste is loaded and the weight after the waste is brought in.

B Platform

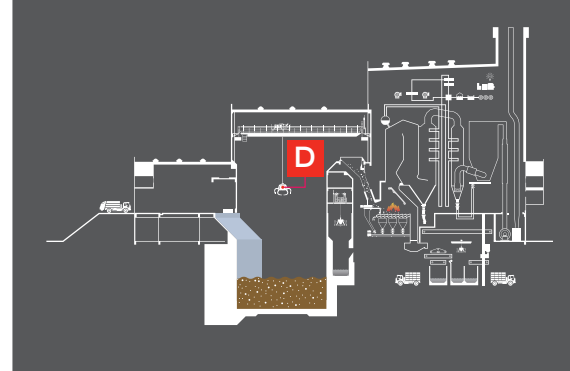


Refuse trucks stop in front of a total of 6 large input doors, and dump waste through the open input doors. Approximately 200 household waste collection vehicles and vehicles transporting combustible waste from business establishments pass through Limpiar INABA every day, and the amount of waste transported is about 200 tons per day. The entrance door is double layered for odor control and safety measures, and the Tottori Sand Dunes, a local scenic spot representing Tottori is drawn on the doors. In addition, since there is a risk that the waste hopper will be clogged with large pieces of waste, the crusher/cutter installed on the platform is used to reduce the size of the waste before throwing it into the waste pit.

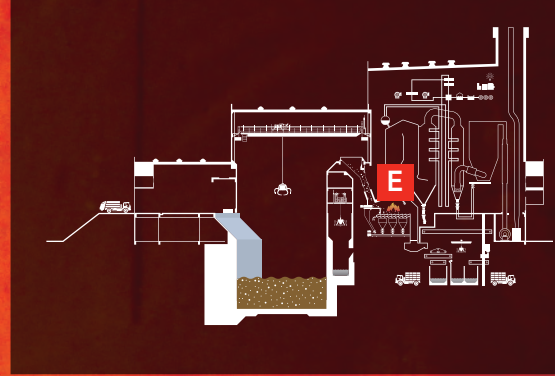
C Waste pit



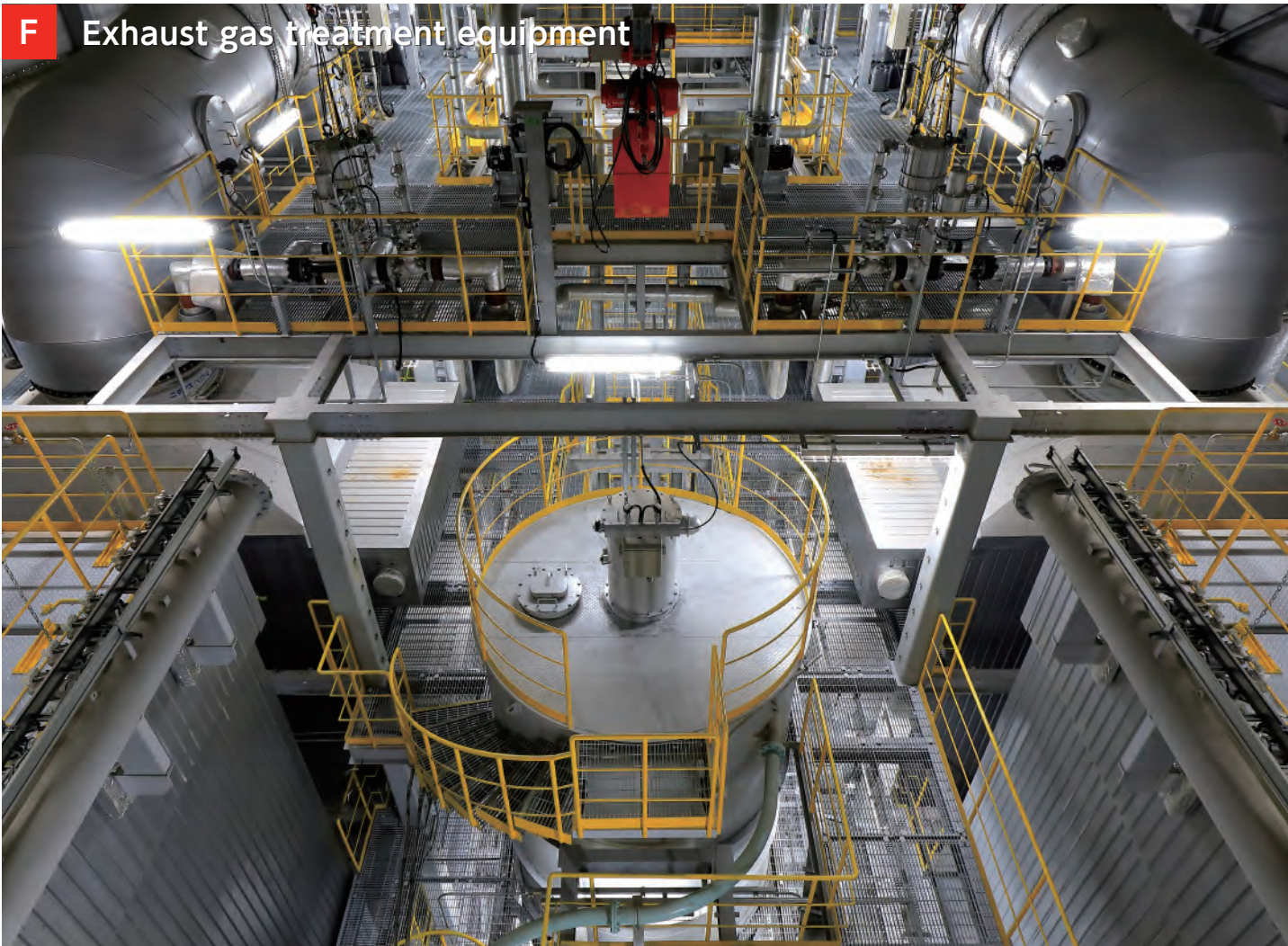
From the platform, the refuse trucks release garbage into the waste pit. The pit has a capacity of 8,200 m³, a depth of 16.8 meters, a width of 25.4 meters, and a length of 19.3 meters. Its size is about twenty-three, 25-meter pools. The facility can store 2,400 tons of waste, or 10 days of the 240 tons it processes per day.



Waste stored in the waste pit is transported to the incinerator after being mixed by a waste crane so that it can burn efficiently in the incinerator. The crane can lift about 5 tons of waste per grip. When the claw of the crane opens, it reaches up to 4.6 meters long, and is usually operated automatically. Children from the local Kawahara Kindergarten drew pictures on it, making it one of the most unique waste cranes in the world.



At Limpiar INABA, two high-performance stoker-type incinerators with a width of 3 meters and a length of 8.2 meters are in continuous operation 24 hours a day. We burn up to 240 tons of waste per day, or about 58,000 tons per year. Waste moves little by little while burning on a metal plate called a stoker, and is burned at a high temperature of 850 to 1,000 degrees for two hours until it completely turns to ash. Exhaust gas is also completely combusted, suppressing the generation of harmful substances.



F Exhaust gas treatment equipment

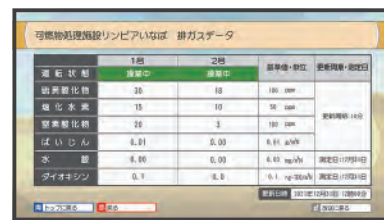
Exhaust gas emitted from burning waste contains harmful substances such as nitrogen oxides and dioxins, so various chemicals are sprayed to clean it. The exhaust gas is reacted with chemicals such as activated carbon and slaked lime to remove hydrogen chloride, sulfur oxides, and dioxins, and the remaining fly ash such as soot is collected by a bag filter. Furthermore, nitrogen oxides are decomposed by spraying ammonia gas at the catalytic reaction tower and released from the chimney in a clean state.

Exhaust gas standard values

Item	Dust (g/m ³ N)	hydrogen chloride (ppm)	sulfur oxides (ppm)	nitrogen oxide (ppm)	carbon monoxide (ppm)	mercury (mg/m ³ N)	Dioxins (ng-TEQ/m ³ N)
1 Regulations stopping	0.01	50	100	100	30	0.03	0.1
2 Monitoring standards	0.01	40	50	50	30	0.03	0.05
3 Voluntary management standards 2	0.009	38	48	48	28	—	0.03
4 Voluntary management standards 1	—	35	45	45	25		
5 Driving standard value	0.008	30	40	40	20		



Pollution monitoring panels

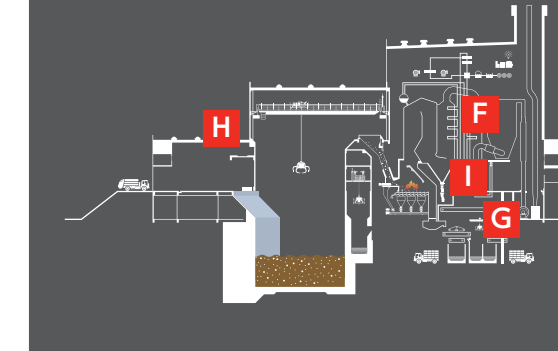


Cable TV screen

At Limpiar INABA, in order to comply with local regulations, we set a number of voluntary control standards for exhaust gas concentrations. We set two levels of voluntary management standards that are stricter than the local regulations stopping and monitoring standards. Even if the concentration of exhaust gas rises due to changes in the quality of waste, we can reliably detect it, investigate the cause, and conduct inspections to return it to a safe number. Normally, we operate based on the driving standard value. The status of exhaust gas concentrations can be checked on pollution monitoring panels, cable TV and website.



G Fly ash processing equipment

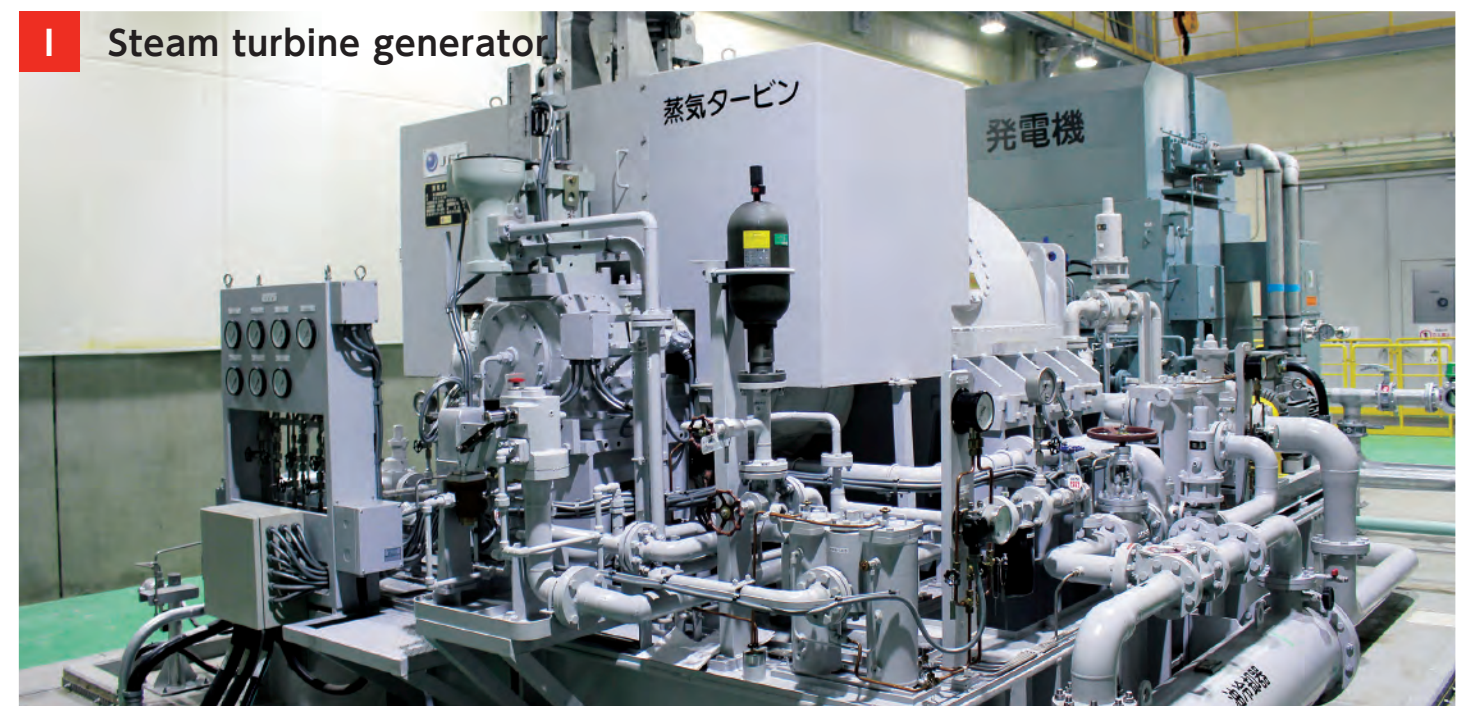


At the fly ash processing equipment, the fly ash in the exhaust gas collected by the bag filter is detoxified with chemicals. Fly ash is mixed with chemicals in a kneading machine to detoxify it, and together with the main ash after being burned in the incinerator, it is transported to the final disposal site and landfilled.



H Central control room

The central control room monitors the entire facility 24 hours a day, from the departure and arrival of the refuse trucks to the inside of the incinerator that burns the waste and the exhaust gas status and controls the equipment to ensure safe and stable operation.



I Steam turbine generator

At Limpiar INABA, the high-temperature heat generated when waste is burned is used to produce water vapor in a boiler, and the water vapor is used to turn turbines to generate electricity. It can generate up to 168,000 kilowatts of electricity per day. The generated electricity is used at the facility, and the surplus is sold to an electric power company. The electricity produced by Limpiar INABA contributes to the promotion of decarbonization in the region as carbon-neutral electricity.

About the Facility Tour

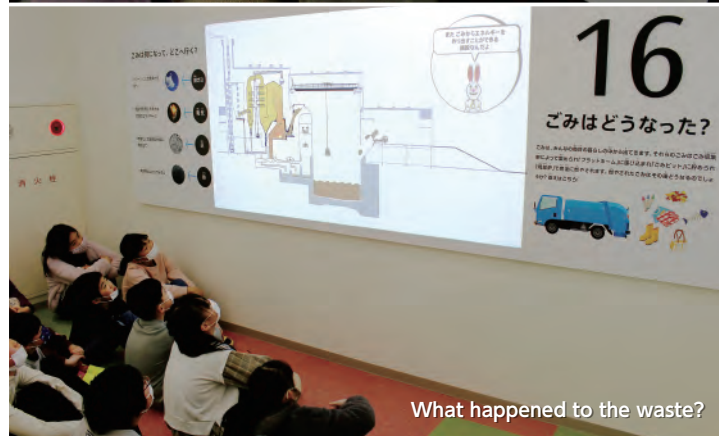
Limpiar INABA is equipped with a theater and game-type facilities so you can enjoy learning about the role of waste disposal facilities, the flow of waste disposal, the importance of sorting waste and weight reduction in an easy-to-understand manner. In addition, it incorporates universal design and barrier-free access, so everyone can enjoy a safe and secure tour.



Waste Exploration Vehicle



Theater of Past and Present INABA-no-Kuni



What happened to the waste?



Regional, Japanese and Global Waste



Administrative building (Entrance hall)



Factory building (Visitor passage)

The navigator, Toki Usagi and the concierge will guide you in a fun and easy-to-understand manner.



Navigator, Toki Usagi
(A rabbit that can transcend time and space)

To visit Limpiar INABA, please make a reservation from the dedicated website.

<https://www.limpiar-inaba.jp>



Inaba Fudoki (Welcome Object) of Inshuwashi (Tottori City)



Wallpaper of Inshuwashi (Tottori City)



The Zodiac by wood carvings
(Iwami Town)



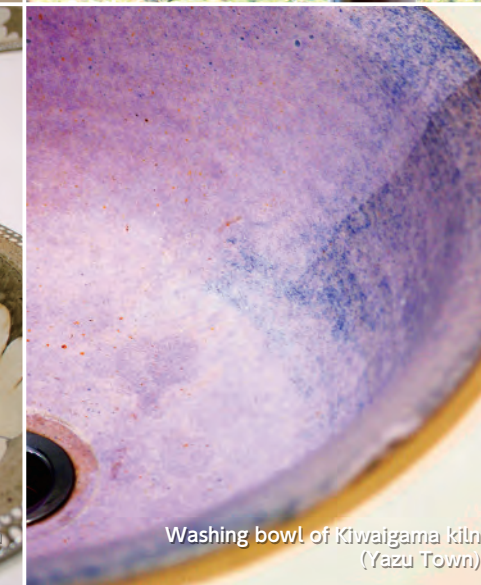
1st floor ceiling made of Chizu cedar
(Chizu Town)



2nd floor ceiling of Wakasa cedar
(Wakasa town)



Washing bowl of Iwaigama kiln
(Iwami Town)



Washing bowl of Kiwaigama kiln
(Yazu Town)



Wooden bench (Yazu Town)

Utilization of local materials and traditional crafts

Limpiar INABA actively utilizes local materials and traditional crafts from the eastern part of Tottori Prefecture in order to make local people proud and attached to it.