

Case studies of Advanced Construction and Demolition waste(CDW) Recycling initiatives and technologies In JAPAN

Affiliation	Tokyo Urban Planning and Development Corporation	
Location	Central Breakwater Inside landfill,3 Aoumi, Koto-ku Tokyo	
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Title	Tokyo Metropolitan Construction Waste Soil (Excavated soil) Recycling Center Operation Management Project	
Theme classification	☐	Prevention
	☐	Re-use
	☐	Recycle
	☐	Reduce Co2
	☐	Legacy
	☐	Business to overseas
	☐	Etc.
Technology development stage	☐	Practical use
	☐	Scheduled to be put into practical use by 2020
	☐	Scheduled to be put into practical use after 2020
Specific content	- This center operates three functions of the information management center, stockyard, and soil improvement plant in an integrated manner in order to effectively promote the reuse of excavated soil generated from public works in Tokyo. Stockyard: Stock capacity: 90,000 m3, Stock area: 2 ha Soil Improvement Plant: Maximum 150 t/h x 2units Annual soil production volume of Approximately 300,000 m3	
Appeal point	- This center is the world's first site to integrally operate and manage the functions of a stockyard, soil improvement plant, and information management center of excavated soil.	



Earth-friendly Facility
Tokyo Metropolitan
Construction Waste Soil
(Excavated Soil)
Recycling Center



Tokyo Urban Planning and Development Corporation

Recycling of Soil Generated by Construction

Tokyo Metropolitan Government's Policy for Construction-generated Soil

The Tokyo Metropolitan Government implements measures on soil generated by construction according to five (5) basic principles:

- (1) Soil quantity
- (2) Control of soil quantity
- (3) Promoting recycling

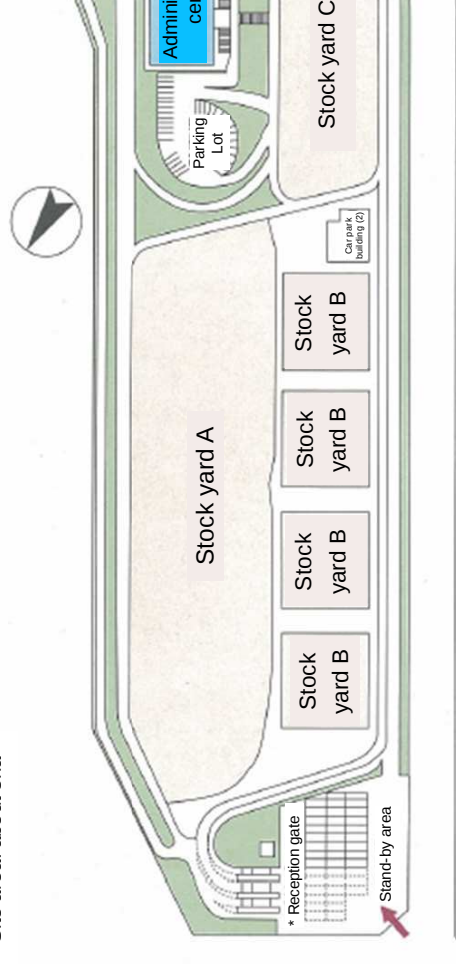
As a way of concretely implementing the above principles, the Tokyo Government established the Tokyo Metropolitan Construction Waste Soil Recycling Center in May 1992.

- (4) Securing the entities/places that would accept the soil
- (5) Promoting the appropriate soil improvement

This Center has three functions: as an information center, as a stock yard, and as a soil improvement plant. To effectively recycle the soil generated at public works Sites in Tokyo, these functions are integrally utilized. This Center is under the Bureau of Urban Development of the Tokyo Metropolitan Government and is operated/managed by the Tokyo New Town Development Corporation.

Ground Plan

* Site area: about 8ha



Outline of the Tokyo Metropolitan Construction Waste Soil Recycling Center

- [Address] Chuo-bohater-uchigawa-umetatechinal, Chisaki, 3-chome, Aomi, Koto-ku, Tokyo
- [Purpose] Reducing the quantity of disposable waste soil generated by public works in Tokyo, while reducing the quantity of mountain sand to be collected, thus, contributing to the creation of a sound recycling society through the recycling of construction-generated soil
- [Service Details]
1. Accepting construction-generated waste soil and providing regular soil
 2. Raising the quality of construction-generated waste soil and providing improved soil
 3. Research on soil quality



Administration Center

Administration Center

Based on information from the Tokyo Government, it operates the stock yard and the soil improvement plant, controls soil quantity, as well as coordinates the integral functions of the Recycling Center, such as central monitoring devices, soil laboratory, etc. It also serves as a reception for ticketing and similar jobs.

Stock Yard

It serves as a storage facility wherein regular soil is temporarily placed, a temporary soil storage facility before treatment at the plant (Soil for Treatment Yard), a drying facility for treating soil (Stock Yard A and B), and a storage for improved soil (Improved Soil Yard).

Soil Improvement

Here, they adjust the sizes of grains of clay of waste soil which cannot be recycled as it is, then mix soil with unslaked lime to improve its quality to the same level as that of mountain sand.



Stock Yard A and B

<Temporary stock capacity: 90,000m³, Area: 2ha>



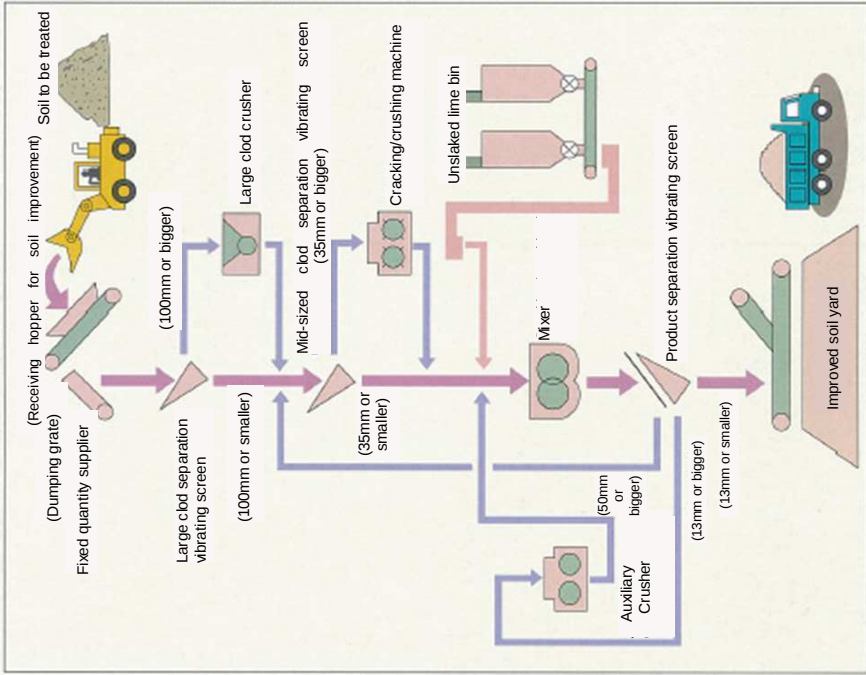
Soil Improvement Plant

<Processing capacity: 150t/h (2 units), Annual output: 300,000m³>

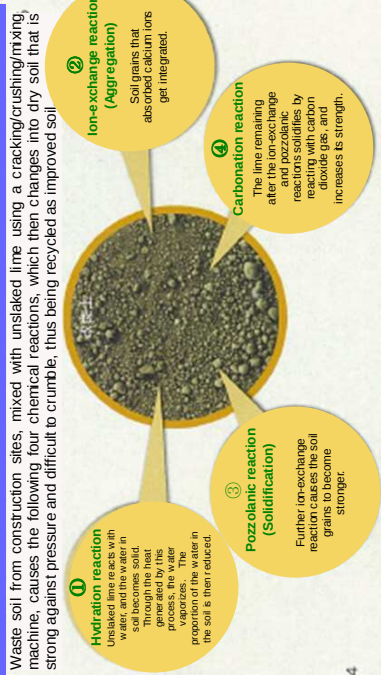


Sorting of received soil by using a trommel
<Processing capacity: about 400m³/day
(for soil received by the Center)>

• Soil Improvement System Using Unslaked Lime



• Chemical Reaction and Effects of Mixing with Unslaked Lime



• Quality Standards of Improved Soil

The quality of the improved soil satisfies the standards of Type 2 Improved Soil stipulated by the Construction Guidelines on Road Occupancy in Tokyo Metropolitan.

1. Grain diameter: 13mm or less
2. CBR: 3% or more, 20% or less
(Each value of the quality control data tested 30 days before the shipment shall be 3% or more, and the mean value shall be 20% or less.)

▼ Soil Quality Testing Laboratory ▼

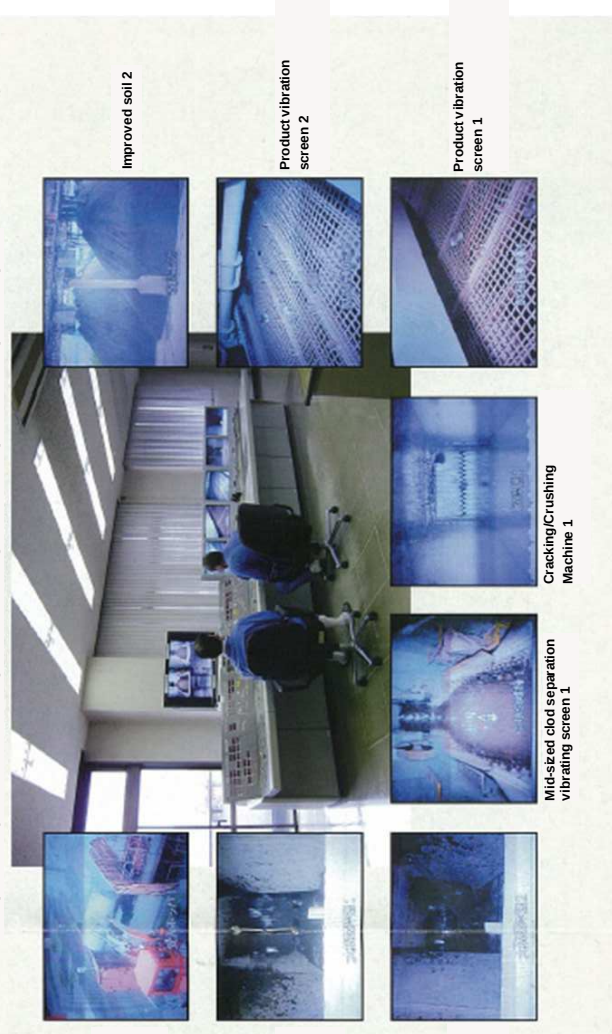


• Quality Certificate of Improved Soil

A certificate is issued upon request.



▼ Supervisory Control Room (for monitoring the soil improvement process) ▼



1. Service Days & Related Information

(1) Sending out of improved soil / receiving of waste soil

	Daytime	Nighttime
Days open	Monday - Saturday	
Days closed	Sundays, holidays (including substitute holidays), August 12 - 16, December 28 - January 4, and other days specially designated)	
Service hours	8:30 - 17:00	22:00 - 5:00

(2) Processing of applications and issuance of tickets to use the facility

Days and Time	Monday - Friday, 9:00 - 17:00
Days closed	Saturdays, Sundays, holidays (including substitute holidays), August 12 - 16, December 28 - January 4, and other days specially designated)

2. Construction Applicability and Criteria for Acceptance

(1) Construction Applicability

Tokyo Government-related public works, located within the radius of 30km from the Recycling Center
(In principle, the construction shall require bringing in the waste soil and taking out either ordinary soil or Type 2 improved soil.)

(2) Acceptance Criteria

Acceptable Soil Type	Soil Classification
Fine sand, sandy soil, silt and cohesive soil	Type 1 Construction Waste Soil
	Type 2 Construction Waste Soil
	Type 3 Construction Waste Soil
Kanto loam	Type 3 Construction Waste Soil
	Type 4 Construction Waste Soil

1. Soil that does not contain toxic substances (According to the criteria, the "Certificate of Soil Test on Toxic Substances" or the "Soil Test Report" shall be required when submitting the application.)

2. Waste containing waste wood, asphalt, concrete blocks, metal, debris, etc. shall not be accepted.

3. Acceptable types of soil and classifications shall be according to the table on the left.

4. The soil shall not be of high water content and shall not discharge odor.

5. Soil from the construction sites of the areas designated by the Soil Contamination Countermeasures Act and the Act on Special Measures for the Prevention of Dioxin, etc. must not be accepted. (Please refer to the website of the Bureau of Environment, Tokyo Metropolitan Government.)

* For details of the acceptance criteria, please refer to the Guidelines on the Use of the Center.



Weighing at the entrance gate

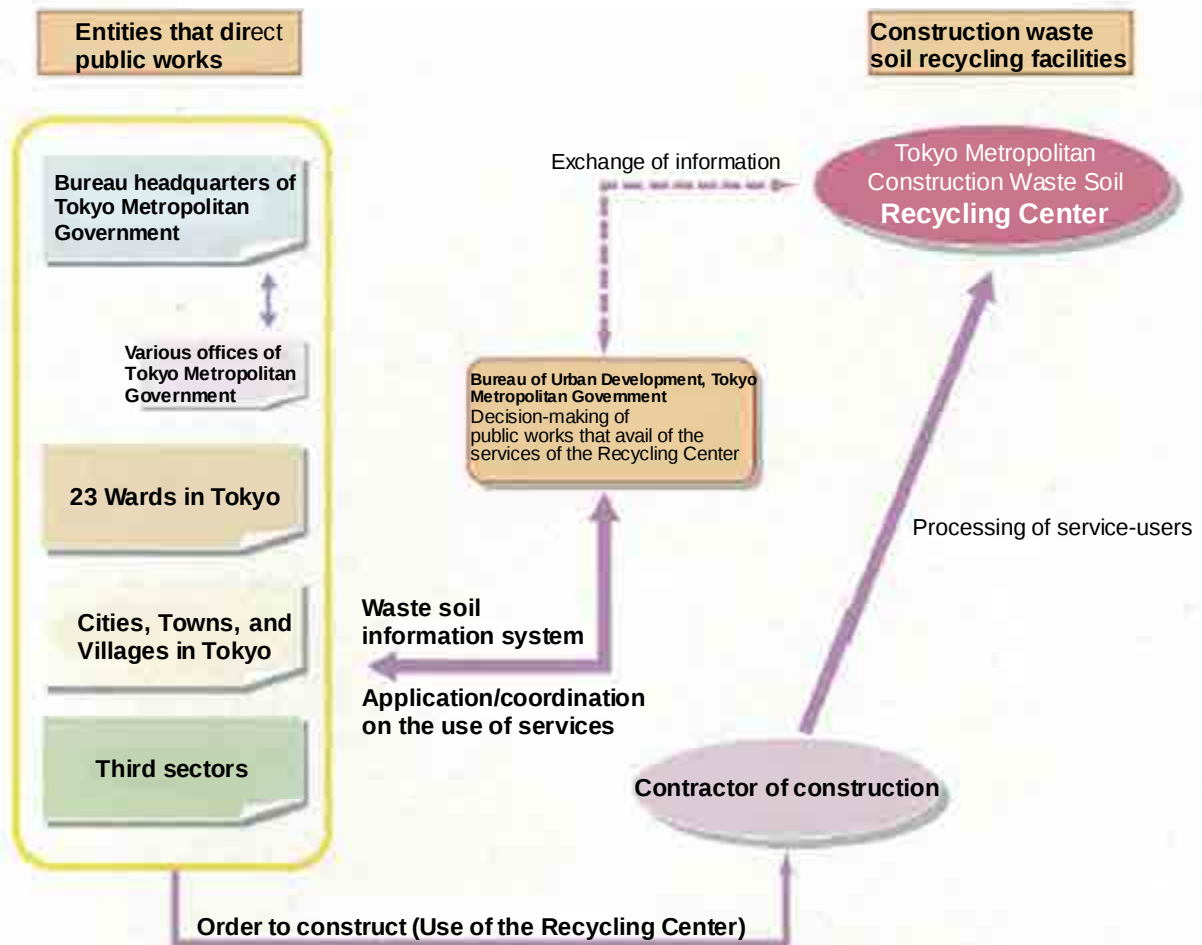
The quantity of soil to be carried in and out is measured and recorded by truck scales upon arrival and departure.

In the Recycling Center, we endeavored to prevent overloading by issuing the Manual on the **Prevention of Overloading**, as well as to promote accident prevention and a safe transport.



Exit gate

Construction Waste Soil Recycling System



View of the entire yard for soil improvement

Tokyo Metropolitan Construction Waste Soil Recycling Center

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