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

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Title	**Recycling Technology of construction sludge**	
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	- The processing system of Sekiyu Kogyo Co., Ltd.'s Jonanjima No.2 Factory, which was completed in December 2016, is a highly integrated processing system of the latest knowledge. The processing system consists of two technologies. One is the latest Silt dehyder technology as an appropriate treatment method to grasp the physical and chemical properties of the object, and the second is desalination technology combining micro bubbles and CO 2. - With the new technology of Silt dehyder, the mechanical classification point of existing cleaning technology in soil, mud, etc. was 75 μm (0.075 mm), but it was possible to set the mechanical classification point to 32 μm (0.032 mm).	
Appeal point		

Recycling Technology of construction sludge

1. Outline of Jonanjima No.2 Plant

In December 2016, the Jonanjima No.2 Plant of Seiyu Kogyo Co., Ltd was completed, which had introduced an advanced cleaning system.

Jonanjima No.2 plant full view

(3-2-11 Jonan-jima, Ota-ku, Tokyo)

Site area: 8,867 m 2 Building area: 2,699 m 2

Greening area: 1,250 m 3

Underground storage tank: 1,225 m 3

Industrial waste disposal facilities

－Crushing facilities

Incoming materials: Cinders, rubble, mixed wastes (plastics wastes, rubbers wastes, scraps, waste textiles, glass wastes, concrete wastes, and ceramics wastes)

Throughput: 2,880 t/day

－Dewatering facilities

Incoming materials: Sludge (inorganic only)

Throughput: 1,076m^3/day × 2 units

－Pelletizing solidification facilities

Incoming materials: Sludge, cinders, rubble, mixed wastes (plastics wastes, rubbers wastes, scraps, waste textiles, glass wastes, concrete wastes, and ceramics wastes)

Throughput: 1,440m^3/day

Contaminated soil treatment facilities

Type of facilities and treatment capacity:

Cleaning and other treatment facilities (cleaning (extraction, washing) 120 t/h 2,880 t/day

Cleaning and other treatment facilities (insolubilization) 60 m^3/h 1,440m^3/ day

Screening and other treatment facilities (removal of foreign materials) 80 m^3/h 1,920 ㎥/day

Screening and other facilities (moisture content control) 60 m^3/h 1,440 ㎥/day

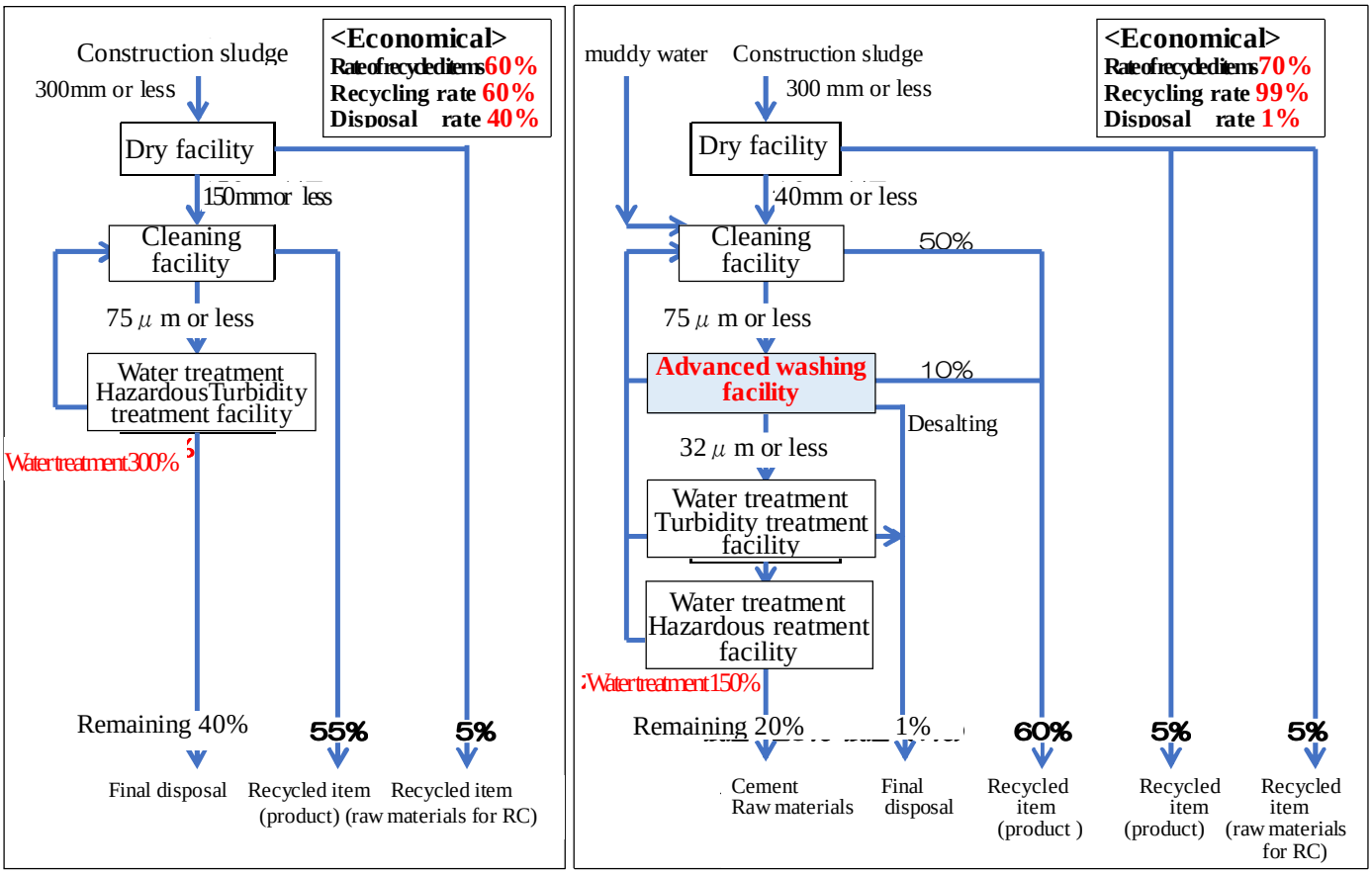
The advanced technology, which has incorporated a Silt dehyder , is a treatment system in which latest findings are integrated at high level. Such findings are the adequate treatment process based on understanding of physical and chemical characteristics of materials to be treated, the demineralization technology in which micro bubbles are combined with CO_2, etc. Though the mechanical classification point in terms of soil and sludge with the conventional cleaning technology was 75μm (0.075mm), a new technology with Silt dehyder has achieved a mechanical classification point of 32μm (0.032mm).

2. New technologies

2-1. Silt dehyder

Silt dehyder is a system achieving substantial improvement of the cleaning accuracy of soil, etc. by adding the silt cleaner to the conventional Silt dehyder.

Silt dehyder



Conventional plant **Silt dehyder plant**

The mechanical classification point in terms of mud with the conventional cleaning technology was 75μm (0.075mm), which can be improved to 32μm (0.032mm) with Silt dehyder. In the case of conventional cleaning technology, the dewatered cake production rate is 27.9% when the grain size is 75μm or less. This facility can recover further one third of mud as product (fine sand) at the grain size of 75μm or less.

2-2. Cleaning with carbonic-acid micro-bubbles

Conventional water cleaning could not remove chlorine solidified in inorganic mines of incineration ashes, etc. Carbonic-acid micro-bubble cleaning proved capable of demineralization.

3. Future overview

No.2 Plant is a critical hub site to consider the greater resources recycling including us. We will make efforts for cooperative challenging with other treatment companies in Tokyo Super Eco Town.

This facility is also capable of handling disaster rubble from great inland earthquake and heavy rainfall whose occurrence is expected and of wastes treatment containing soils, specifically chlorine. In case of emergencies, we are confident that this facility will contribute to rapid disaster rehabilitation and recovery of urban functions.