



Supporting Ukraine's Reconstruction with Japan's Experience

- Destruction Waste Management -



©Higashi Matsushima City



©JICA



©MoENR



©JICA

Yumi Kimura

Environmental Management and Climate Change Group
Global Environment Department, JICA

February 7, 2024

To benefit **500 million** citizens in **50** countries by **2030**

JICA addresses waste, water and air pollution, and other environmental problems that cause health problems to create clean cities.

JICA Global Agenda
— JICA'S 20 Strategies for Global Development Issues

18

Environmental Management
- JICA Clean City Initiative -

Prevent Environmental Pollution to Create Clean Cities for the Healthy Lives of People

JICA addresses waste, water and air pollution, and other environmental problems that cause health problems, to create clean cities.

In many partner countries, industrialization and urbanization are progressing without environmental measures, causing serious contamination of water, air, and soil, and damaging people's health. Through measures such as waste management and the prevention of water and air pollution, we work together in creating "clean cities" and aim to build sustainable societies.





SUSTAINABLE DEVELOPMENT GOALS

12 Responsible Consumption and Production

14 Climate Action

17 Sustainable Cities and Communities

Japan International Cooperation Agency (JICA) works toward the achievement of the Sustainable Development Goals (SDGs).

APPROACHES Clusters: Two cooperation approaches for solving problems

Cluster 1	Cluster 2
<p>Improve waste disposal structures to create a recycle-oriented society</p>	<p>Create a healthy water, air, and soil environment through environmental regulations and pollution prevention measures</p>
<p>1 Create and implement a system to collect, transport, and dispose of waste</p>	<p>1 Enhance the ability to analyze pollutants to understand the current problems</p>
<p>2 Reduce waste by introducing segregation and recycling</p>	<p>2 Develop and implement counter-pollution measures based on scientific evidence</p>
<p>3 Support policies that reduce waste generation and promote effective use of resources</p>	<p>3 Strengthen controls over pollutant generation while promoting investments in environmental measures</p>

Another knowledge and experience of Japan

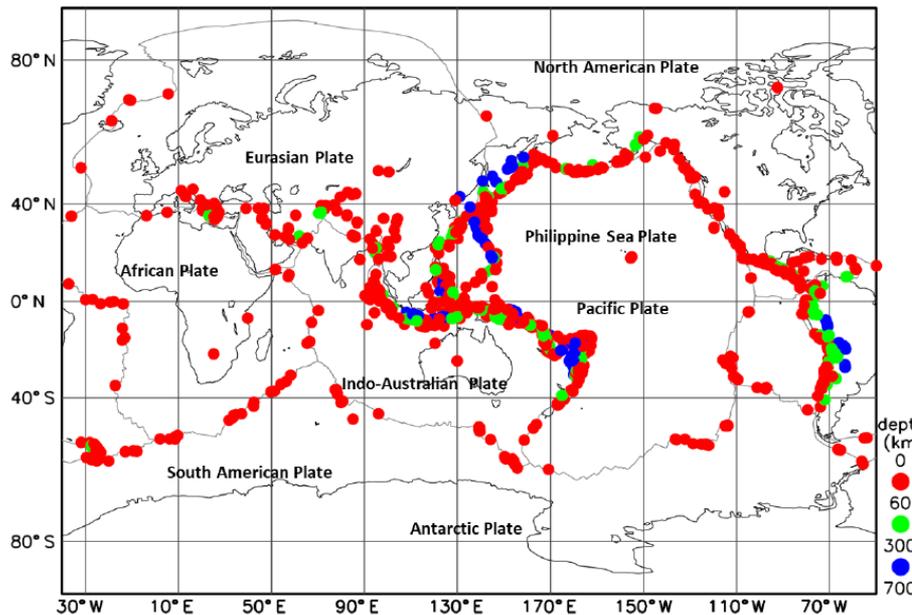
Disaster Waste Management



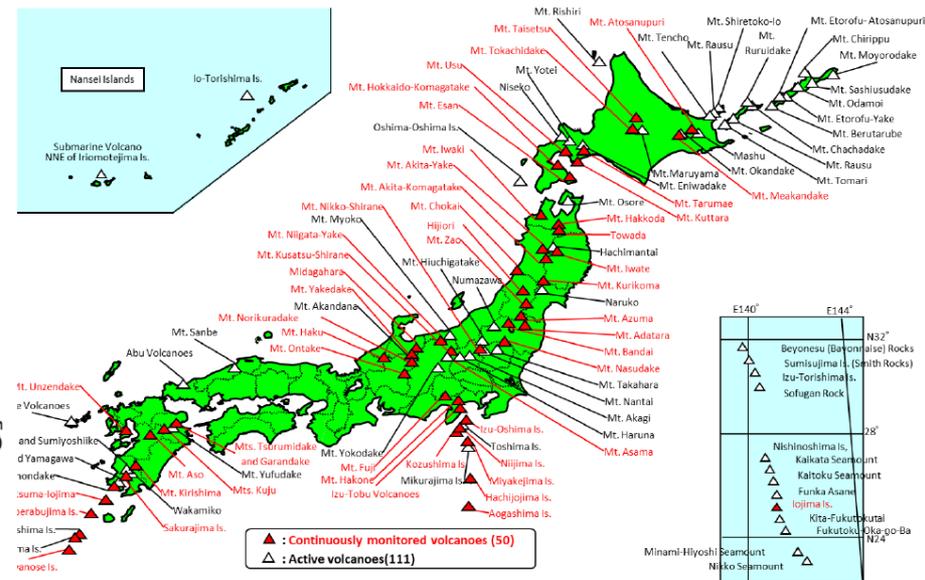
Overview of Japan's National Land

- ❑ Japan is located in the Pacific Ring of Fire, where earthquakes and volcanic activity are active.
- ❑ About **10%** of the world's earthquakes occur in and around Japan.

World Hypocenter Distribution (for Magnitude 6 and Higher Earthquakes) and Plate Boundaries



Distribution of Active Volcanoes in Japan



te: 2012 - 2021

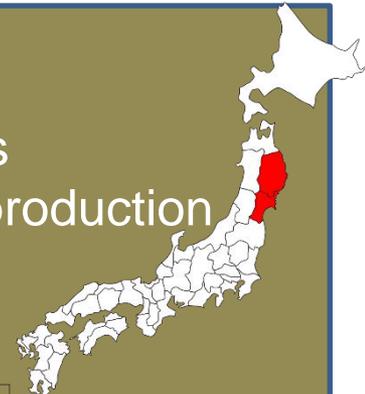
Source: White Paper on Disaster Management

Table 2-2. Estimated amount of DWs in the past disasters

Date	Name of the Disaster	Estimated amount of DWs
Earthquake/Tsunami		
Dec 2004	Sumatra-Andaman earthquake (Indonesia)	7 million-10 million m ³
May 2008	Sichuan earthquake (China)	20 million tons
Jan 2010	Haiti Earthquake (Haiti)	23 million-60million tons
Mar 2011	The Great East Japan Earthquake (Japan)	31 million tons
Apr 2015	Nepal earthquake (Nepal)	14 million tons
Cyclone/Typhoon/Hurricane/Flooding		
Aug 2005	Hurricane Katrina (USA)	26.8 million tons
Oct 2011	Thailand floods (Thailand)	100,000 tons
Nov 2013	Super Typhoon Haiyan (Yolanda) (Philippines)	19 million tons
Feb 2016	Tropical Cyclone Winston (Fiji)	23,525 tons

Source; Framework of DWM Guideline in Asian & the Pacific

- ❑ Equal to 70% of annual domestic waste in Japan
- ❑ In Iwate Prefecture, the amount of general waste generated is approximately equivalent to 11 years' worth of annual waste production
- ❑ In Miyagi prefecture, approximately equivalent to 19 years'.

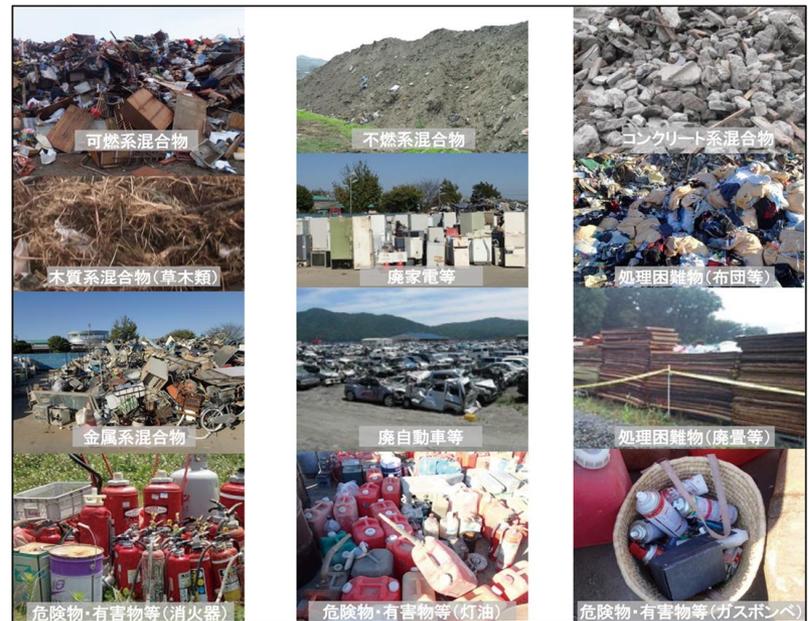


Impacts of Disaster Waste

- ❑ Once natural disaster strikes, **various kinds of waste are generated in massive volume all at once.**
- ❑ Proper handling and early removal is required to **maintain living environment and prevention of secondary pollution.**
- ❑ Swift disaster waste treatment is essential for **early recovery/reconstruction** of affected areas.

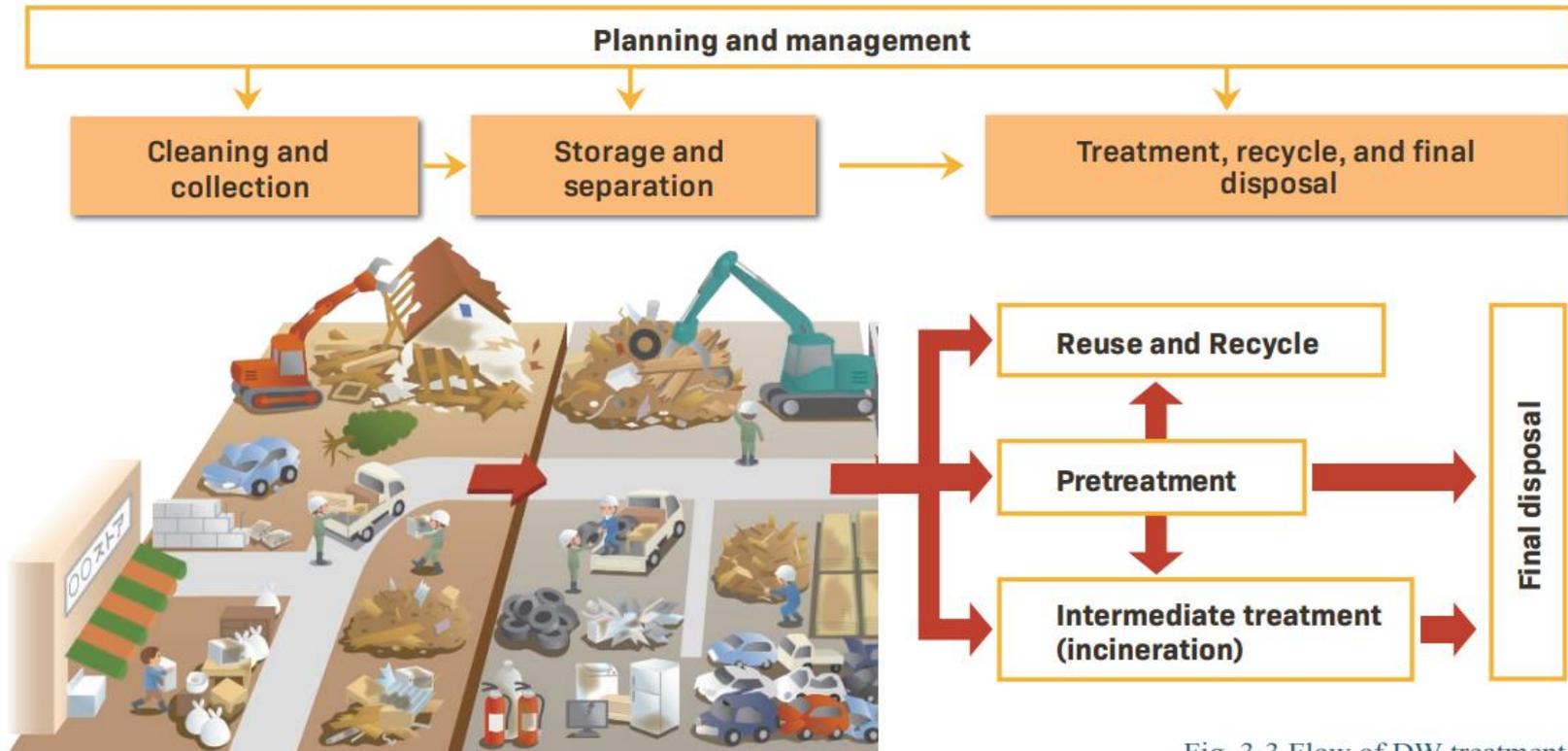


Photo: NIES



Source: MOEJ

Basic Flow for Treating Disaster Waste



Source: MOEJ, JSMCWM

Fig. 3-3 Flow of DW treatment

Temporary Storage Sites

Appropriately separated waste could be recycled and quickly disposed of (if such waste treatment / recycling technology and facility exist)



Source: MOEJ, JSMCWM

Recycling of Disaster Waste



Photos : Higashi Matsushima City

Recycling after sorting

- Metals → sold as iron resources
- Woody → chipped and used as biomass fuel, construction materials
- Crushed concrete → used as recycled crushed stones

Coastal levee repair project in Iwaki



Photo: Ministry of the Environment

Nakanohama-en reconstruction project in Miyako, Iwate



Photo: Ministry of the Environment

In the Great East Japan Earthquake, 82% of disaster waste and 99% of tsunami deposits was recycled.

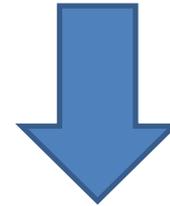
JICA's Support for Destruction Waste Management in Ukraine



Destruction Waste in Ukraine



In the regions affected by the military invasion of Russia, numerous public and private buildings, residences, and facilities have been damaged, leading to a substantial amount of debris.



Issues

- Contamination of hazardous waste
- The overcrowding of final disposal sites
- No experience to managing large scale debris

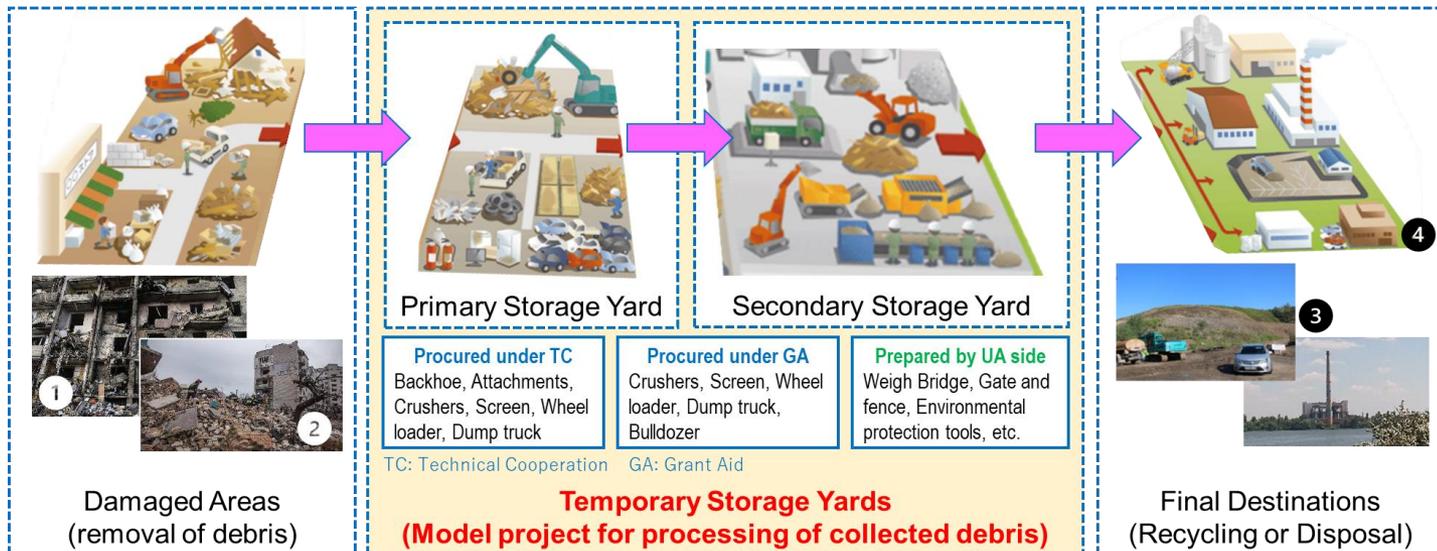
❑ Online seminars (2022-2023)

Share Japan's knowledge and experience with post-disaster waste management.



❑ Establishment of Destruction Waste Management System (2023-)

A pilot project for destruction waste management is implemented under the Project for Emergency Recovery and Reconstruction. (see next slide)



Source: ① <https://www.japantimes.co.jp/news/2022/03/05/world/russia-war-crimes-ukraine/>, ② <https://www.preventionweb.net/blog/rebuilding-ukraine-imminent-risks-asbestos>, ③ NIPPON KOEI CO., LTD ④ (Image):NIES.

JICA's Support for Destruction Waste Management in Ukraine

The pilot project in Kyiv Oblast (Kyiv region)

- ❑ Support to establish destruction waste management system in align with the Cabinet Resolution
- ❑ Combination of soft & hard component (Japan's know-how & key equipment)
- ❑ Collaboration among GOV, NGO, Private Companies

Get Know-how for planning and management	Horizontal expansion throughout Ukraine	Improving recycling technology
		
<p>Goals Be able to create an Action Plan for destruction waste. Identify the damage, relevant agencies, waste disposal facilities, and destinations for recyclables, and establish an appropriate temporary storage site design and treatment schedule.</p> <p>Contents</p> <ul style="list-style-type: none"> • Creating Action Plan • Developing Operation Manual • Creating TSS Development Plan • Estimation of amount of destroyed waste • Securing a place to use recycled materials, etc. 	<p>Goals The planning and operational procedures for the disposal of destruction waste will be horizontally extended to municipalities outside of Kyiv Oblast State (Military) Administration.</p> <p>Contents</p> <ul style="list-style-type: none"> • Inspection of the TSS in Kyiv Oblast State (Military) Administration. • Explanation of the Action Plan • Explanation of the Operation Manual • Explanation of TSS development plan • Japan Knowledge Sharing Seminar 	<p>Goals Technology for recycling destruction waste will be acquired. Knowledge will be accumulated on the recycling of rubble (concrete, asphalt and bricks).</p> <p>Contents</p> <ul style="list-style-type: none"> • Provision of related recycling equipment • Short-term overseas training (Kleemann co., Ltd.) • Securing of recycled material utilization • Quality control • Operational support by local experts

JICA's Support for Destruction Waste Management in Ukraine (Grant Aid)

□ Procurement of Heavy Machineries for Debris Management



Jaw Crusher



Excavator



Bulldozer



Impact Crusher



Backhoe loader



Dump truck



Sieve Machine (Screen)



Wheel loader



Trommel Screen

JICA's Support for Destruction Waste Management in Ukraine (TC)

❑ Training in Japan (Jan 24-Feb 9, 2024)

“Capacity building for the management of destruction waste and recycling”

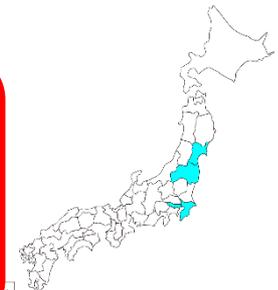


Damage Assessment
Feb. 6: National Institute of Environment Studies for debris volume estimation and measures for asbestos

Planning, Implementation and Monitoring of TSS
Jan. 29: Private Construction Waste Recycling Company
Jan. 30: Miyagi Prefecture
Feb. 2: TSS and Recycling company at Fukushima area
Feb. 5: Private Industrial Waste Recycling Company

Destinations
Jan. 31: Senday City for its municipal waste management system

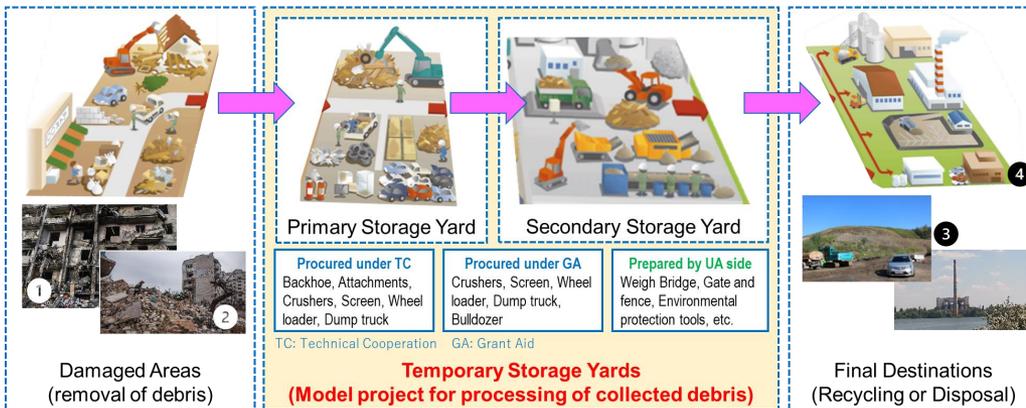
Overall
Jan. 26: Ministry of Environment, Feb. 1: Points and Know-how of Disaster Waste Treatment & Construction Recycling System



JICA's Support for Destruction Waste Management in Ukraine



Expand knowledge and experiences of destruction waste management to be obtained through the pilot project in Kyiv Oblast to the southeastern municipalities in Ukraine



Major Machinery for Debris Management



Jaw Crusher



Excavator



Bulldozer



Impact Crusher



Backhoe loader



Dump truck



Sieve Machine (Screen)



Wheel loader



Trommel Screen

Source: ① <https://www.japantimes.co.jp/news/2022/03/05/world/russia-war-crimes-ukraine/>, ② <https://www.preventionweb.net/blog/rebuilding-ukraine-imminent-risks-asbestos>, ③ NIPPON KOEI CO., LTD ④ (Image):NIES.

Thank you for your attendance at JCCI International Seminar 2024!



Praying for a swift reconstruction of Ukraine and clean and beautiful cityscape can be restored once again.

