Supporting Ukraine's Reconstruction with Japan's Experience
- Destruction Waste Management -

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

**Approaches**

Cluster 1: Improve waste disposal structures to create a recycle-oriented society

1. Create and implement a system to collect, transport, and dispose of waste
2. Reduce waste by introducing segregation and recycling
3. Support policies that reduce waste generation and promote effective use of resources

Cluster 2: Create a healthy water, air, and soil environment through environmental regulations and pollution prevention measures

1. Enhance the ability to analyze pollutants to understand the current problems
2. Develop and implement counter-pollution measures based on scientific evidence
3. Strengthen controls over pollutant generation while promoting investments in environmental measures
Another knowledge and experience of Japan

Disaster Waste Management
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.
### Major Disasters and Amount of Disaster Waste

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Name of the Disaster</th>
<th>Estimated amount of DWs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Earthquake/Tsunami</strong></td>
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<tr>
<td>Dec 2004</td>
<td>Sumatra-Andaman earthquake (Indonesia)</td>
<td>7 million-10 million m³</td>
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<tr>
<td>May 2008</td>
<td>Sichuan earthquake (China)</td>
<td>20 million tons</td>
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<tr>
<td>Jan 2010</td>
<td>Haiti Earthquake (Haiti)</td>
<td>23 million-60 million tons</td>
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<tr>
<td>Mar 2011</td>
<td>The Great East Japan Earthquake (Japan)</td>
<td><strong>31 million tons</strong></td>
</tr>
<tr>
<td>Apr 2015</td>
<td>Nepal earthquake (Nepal)</td>
<td>14 million tons</td>
</tr>
<tr>
<td></td>
<td><strong>Cyclone/Typhoon/Hurricane/Flooding</strong></td>
<td></td>
</tr>
<tr>
<td>Aug 2005</td>
<td>Hurricane Katrina (USA)</td>
<td>26.8 million tons</td>
</tr>
<tr>
<td>Oct 2011</td>
<td>Thailand floods (Thailand)</td>
<td>100,000 tons</td>
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<tr>
<td>Nov 2013</td>
<td>Super Typhoon Haiyan (Yolanda) (Philippines)</td>
<td>19 million tons</td>
</tr>
<tr>
<td>Feb 2016</td>
<td>Tropical Cyclone Winston (Fiji)</td>
<td>23,525 tons</td>
</tr>
</tbody>
</table>

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

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

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

- **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)

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**

**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.

**Contents**
- Creating Action Plan
- Developing Operation Manual
- Creating TSS Development Plan
- Estimation of amount of destroyed waste
- Securing a place to use recycled materials, etc.

**Horizontal expansion throughout Ukraine**

**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.

**Contents**
- 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

**Improving recycling technology**

**Goals**
Technology for recycling destruction waste will be acquired. Knowledge will be accumulated on the recycling of rubble (concrete, asphalt and bricks).

**Contents**
- Provision of related recycling equipment
- Short-term overseas training (Kleemann co., Ltd.)
- Securing of recycled material utilization
- Quality control
- Operational support by local experts

Source: JICA Consultant Team
JICA’s Support for Destruction Waste Management in Ukraine (Grant Aid)

- Procurement of Heavy Machineries for Debris Management

- Jaw Crusher
- Impact Crusher
- Sieve Machine (Screen)
- Trommel Screen
- Excavator
- Bulldozer
- Backhoe loader
- Dump truck
- Wheel loader
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”
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.
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.