Exploring Tokyo Bay

Present problems and future prospects of Tokyo Bay

3. Disposing of waste in Tokyo Port

YOKOYAMA Hidenori, Tokyo Waste Landfill Management Office, Chief of Facility Section

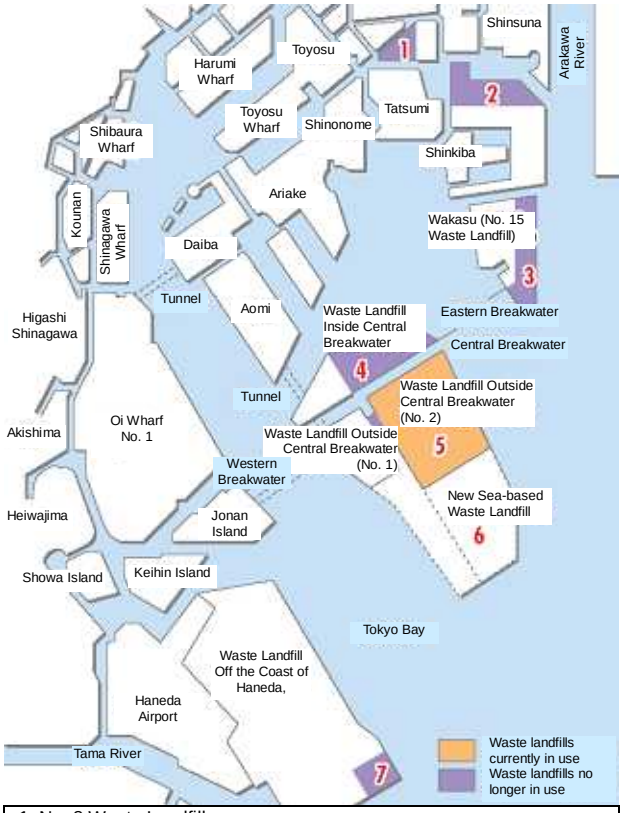
History and present state of waste disposal sites

Waste has been dumped into Tokyo Bay since 1927. The first site was the No. 8 Waste Landfill located in Shiomi, Koto Ward. Fig. 1 shows the locations and sizes of waste landfills and the tonnage of landfill waste.

The 23 wards of Tokyo generate non-industrial waste, such as incineration ash and nonflammable waste that has been subjected to intermediate treatment. Medium- and small-size businesses generate industrial waste. Water and sewage treatment facilities generate sludge. All of this waste is sent to the Waste Landfill Outside Central Breakwater and the New Sea-based Waste Landfill in line with established acceptance criteria.

Fig. 2 shows the tonnage of waste that is sent to landfills each fiscal year. The figure was 170,000 tons in 1948. It gradually increased to 3,420,000 tons in 1979, the highest amount during the survey period, but improvements in garbage disposal facilities and recycling reduced the amount to about 1,230,000 tons in 2003.

The waste management services provided by the Tokyo Metropolitan Government (TMG) were transferred to the 23 ward offices in April 2000. The waste landfills constructed and managed by the TMG are used for final disposal of the waste.



1. No. 8 Waste Landfill
   • Start of landfill operations: 1927 • Completion of landfill operations: December 1962 • Size of waste landfill: About 36.4 ha • Tonnage of waste: About 3.71 million tons
2. No. 14 Waste Landfill (Yumeno Shima)
   • Start of landfill operations: December 1957 • Completion of landfill operations: March 1967 • Size of waste landfill: About 45 ha • Tonnage of waste: About 10.34 million tons
3. No. 15 Waste Landfill (Wakasu)
   • Start of landfill operations: November 1965 • Completion of landfill operations: May 1974 • Size of waste landfill: About 71.2 ha • Tonnage of waste: About 18.44 million tons
4. Waste Landfill Inside Central Breakwater
   • Start of landfill operations: December 1973 • Completion of landfill operations: March 1987 • Size of waste landfill: About 78 ha • Tonnage of waste: About 12.3 million tons
5. Waste Landfill Outside Central Breakwater (No. 2)
   • Start of landfill operations: October 1977 • Size of waste landfill: About 199 ha • Tonnage of waste: About 52.1 million tons[Note)]
6. New Sea-based Waste Landfill
   • Start of landfill operations: December 1998 • Size of waste landfill: About 319 ha • Tonnage of waste: About 2.7 million tons[Note)]
7. Waste Landfill Off the Coast of Haneda
   • Start of landfill operations: April 1984 • Completion of landfill operations: November 1991 • Size of waste landfill: About 12.4 ha • Tonnage of waste: About 1.68 million tons

Note: Figures in parentheses indicate the tonnage of landfill waste as of the end of fiscal 2004.

Fig. 1 Locations and sizes of waste landfills and tonnage of landfill waste

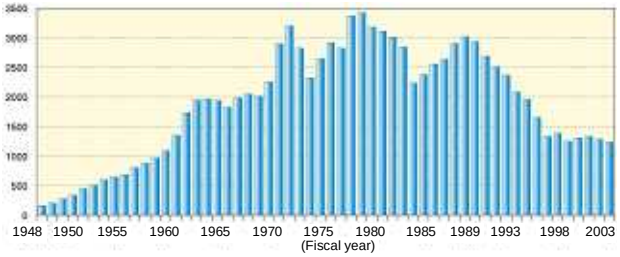


Fig. 2 Tonnage of landfill waste by fiscal year (unit: 1,000 tons)

Efforts to reduce landfill waste

New waste disposal sites in Tokyo Bay are difficult to develop. The New Sea-based Waste Landfill is the last waste disposal site in the bay.

To reduce landfill waste, the TMG has formulated a waste disposal plan and promotes waste recycling and reductions in waste generation. Plastic is particularly light and bulky and takes up valuable space in landfills. The TMG regards waste plastic as a useful resource and promotes materials recycling (e.g., PET bottles can be recycled as fibers for making clothing) as well as thermal recycling (e.g., burned to produce heat for power generation).

Base on the TMG's plan, the 23 ward offices are studying ways to recover resources and use nonflammable waste having a high plastic content as fuel for power generation. In addition, as part of the National Government's Urban Renaissance Project, the TMG supports private businesses that want to generate power by gasifying or melting the plastic in industrial waste that cannot be recycled and used as raw materials.

Environmental protection at waste landfills

(Details available at http://www2.kankyo.metro.tokyo.jp/tyubou/)

Waste landfills are managed and operated under environment-related laws and regulations, including the Waste Management and Public Cleaning Law. Measures are taken to prevent dispersion of waste and control pests at waste landfills. Rainwater infiltrates waste landfills and flows out of the landfills at rates as high as 10,000 m^3 a day. The rainwater is purified by the landfills and discharged into a public sewer main.

As waste decomposes, it generates gases, mainly methane (1.5 million Nm^3/year; calorific value: 14,600 kJ/Nm^3). These gases are used to generate electric power, which is utilized at the landfills to help prevent global warming.

The TMG implements these environmental protection measures and operates the landfills using the mechanisms of ISO14000 to ensure environmentally friendly operation.

Waste disposal in landfills has a great impact on the environment, so further efforts are required to control waste disposal and promote recycling. The interim report of the TMG Waste Management Council in February 2006 set the goal of reducing the amount of landfill waste in 2010 to half that in 2000. It is important for the citizens of Tokyo as well as local entities and administrative bodies, to address the issues by sharing information.