

A controlled sea-level landfill site is a final waste disposal site constructed in the sea for landfill disposal. Measures are taken to prevent hindrance to the preservation of the living environment during construction and operation. While a sea-level landfill site can secure sufficient landfill capacity compared to a landfill site, it requires time to decompose and stabilize the waste because most of the landfill waste is submerged, and the maintenance and management period until the landfill site is decommissioned is long.

Initiatives at the Kinoura Port No. 3 Waste Final Disposal Site

● Outline of Kinoura Port No. 3 Landfill Site

Kinuura Port No. 3 Landfill Site is a sea-level landfill site managed and operated by the Aichi Coastal Environment Improvement Center.

From March 2011 to fiscal 2032 (planned), a landfill disposal project for municipal solid waste and industrial waste discharged from business activities in Aichi Prefecture has been carried out in the managed area, with a landfill area of 34.4 ha and a capacity of 4.23 million m³ (excluding covered soil).

● Facility structure and landfill method

To prevent contamination of public water bodies outside the landfill site, the controlled disposal area is constructed with an impermeable bottom layer and perimeter seawalls incorporating double liner sheets and deformation-following impermeable barrier materials.

In order to maintain the water barrier function at the bottom, the landfill method uses a movable floating pier to inject waste uniformly and in thin layers. After the thin-layer landfill, the waste is reclaimed by pushing it from the land using heavy machinery.

● Maintenance and management of facilities

In accordance with legal maintenance and management standards, measures to prevent scattering and outflow of waste, and periodic inspections and management of enclosures, revetments, and water barrier works are implemented. Leachate from the disposal site is discharged into the sea after meeting wastewater standards at water treatment facilities.

Effluent water, water quality around the landfill site, sediment quality, and odors are monitored regularly.

● Issues and Efforts at the Landfill Site

- Early stabilization measures using CO₂ fixation technology -

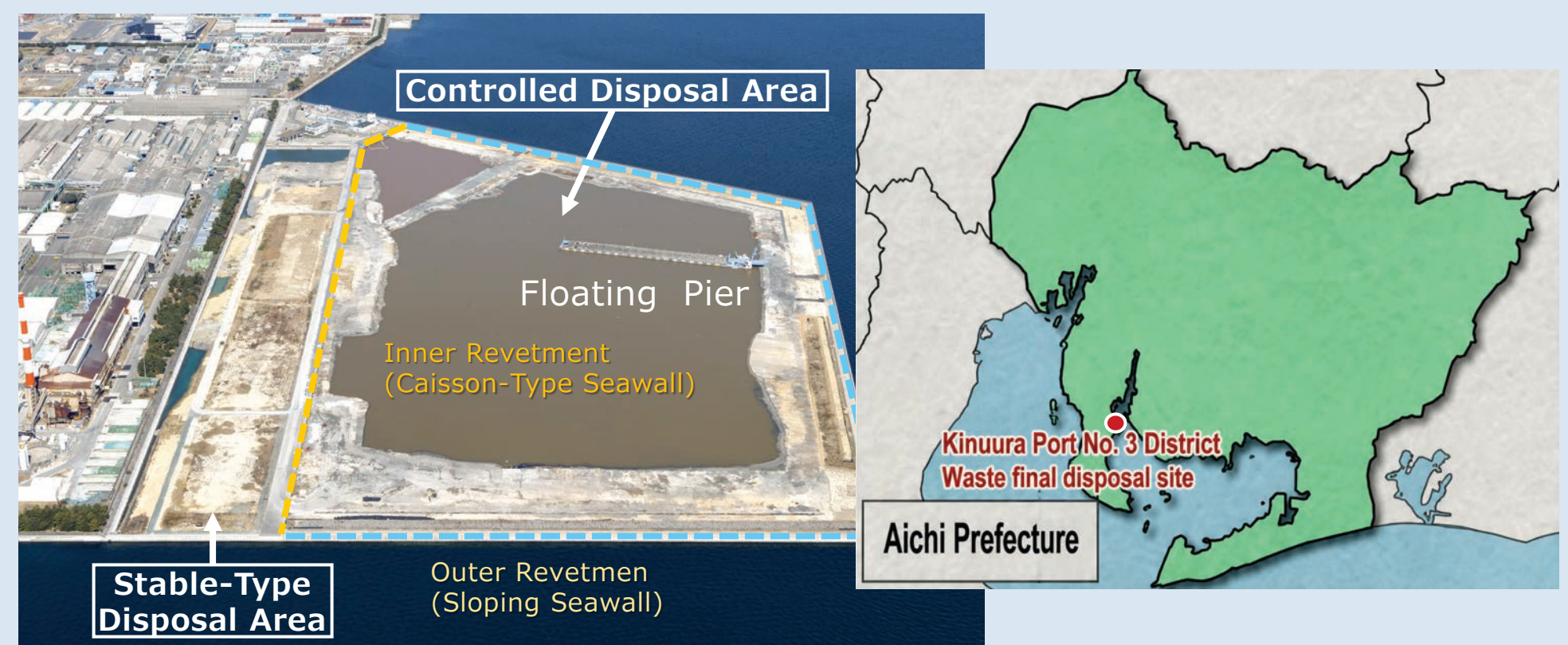
[Issues]

At the landfill site, the retained water is highly alkaline due to soot, dust, slag, and other wastes that constitute the landfill ground.

If the landfill is terminated in this state, there is concern that it will take a long maintenance period and a large amount of money until the landfill meets the legal standard for abolition (pH: 5.0~9.0).

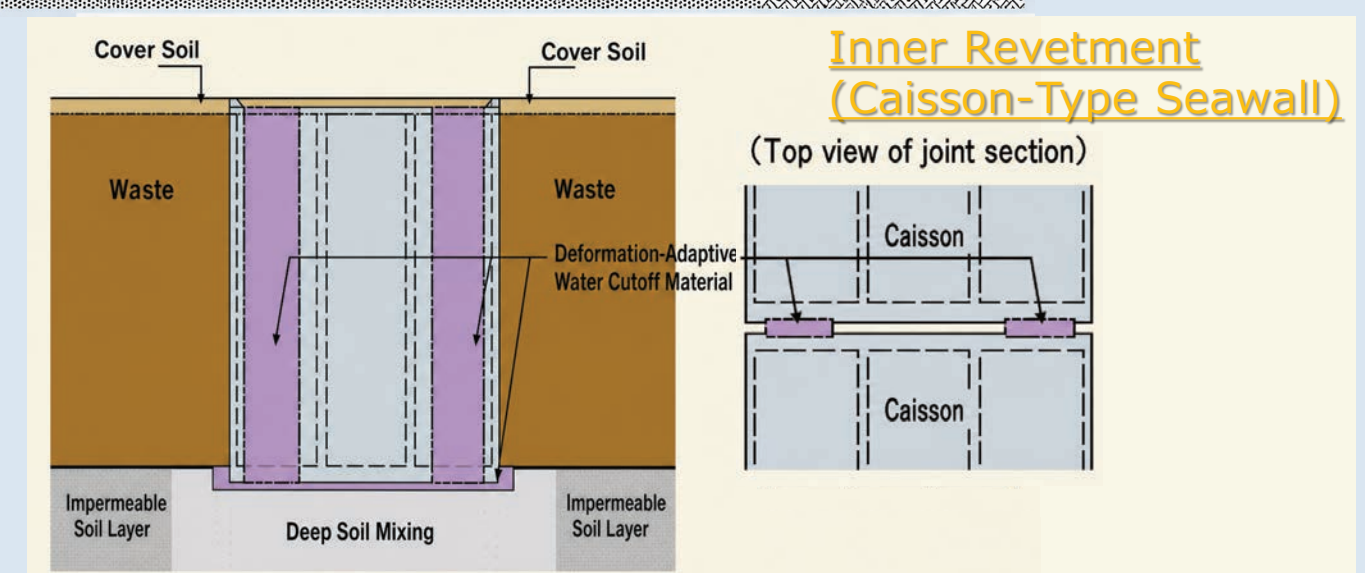
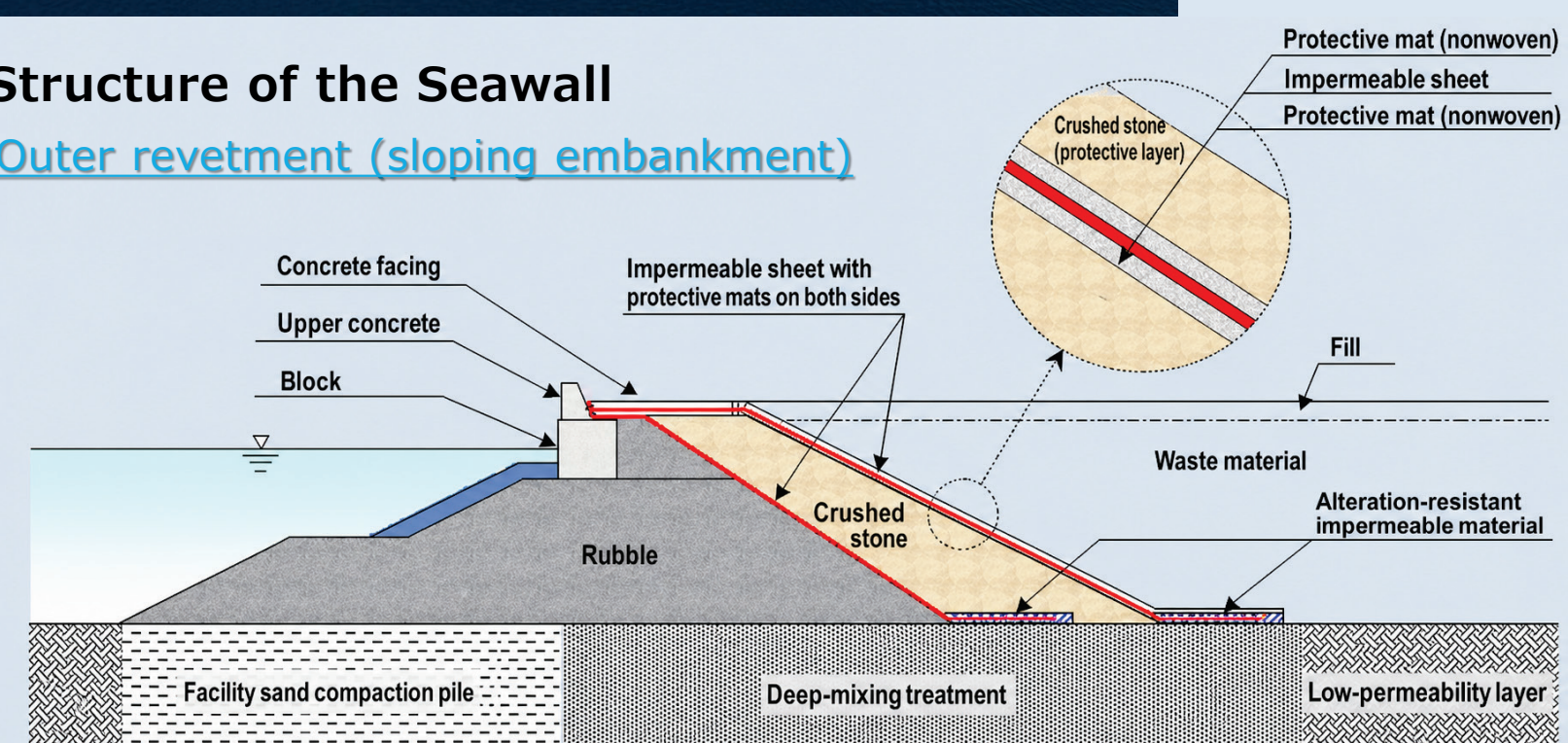
[Initiatives] In order to effectively neutralize the retained water at the landfill site, the Aichi Coastal Environmental Improvement Center, in cooperation with Toyo Construction Co., Ltd., is conducting demonstration tests of methods such as (1) accelerating CO₂ fixation to waste particles by sprinkling water, (2) measuring CO₂ dissolution flux from the atmosphere, and (3) neutralizing the retained water by supplying CO₂.

■ Kinoura Port No. 3 Waste Final Disposal Site (2025.3)



■ Structure of the Seawall

Outer revetment (sloping embankment)



■ Thin-Layer Reclamation from a Floating Pier



■ Effluent Water Quality Monitoring



■ Water Quality Survey in Surrounding Marine Areas

