



Aircraft parked at gates of Passenger Terminal 1



Resource Recycling Initiatives

3Rs of Waste

Targets

- Recycle resources (Reduce general waste incinerated)
- Recycle water resources (Reduce potable water usage)

To reduce environmental impact, the 3Rs (Reduce, Reuse, Recycle) are actively encouraged when handling waste produced by operations at Narita International Airport.

In the Eco-Airport Master Plan (FY 2016–2020), we aim to reduce general waste incinerated (per airport user) by 5% of fiscal 2015 levels (0.45 kilograms/person) by 2020. The total amount of general waste disposed of in fiscal 2017 was 22,900 tons, thus lower than the previous fiscal year in spite of a greater number of aircraft movements and passengers. The amount per airport user was 0.42 kilograms. The total recycling rate in fiscal 2017 was 27.8%.

While promoting our waste reduction initiatives, we will develop new areas of recycling and perform comprehensive waste sorting.

Goals and Performance

Reduce general waste incinerated (per airport user)



General Waste Sorting

The greatest volume of general waste produced at Narita International Airport is unloaded from aircraft, which comprises about half of the total amount. Some of this waste, catering waste must be incinerated under quarantine laws. For other waste, while adverse conditions such as limited onboard sorting space and time available for cabin cleaning exist, a portion of airlines do sort and recycle waste such as inflight magazines, bottles, cans and plastic bottles.

Meanwhile, general waste from passenger terminals, the cargo area, the office area and other facilities is sorted into bottles, cans, plastic bottles and so on, ensuring that reusable items are recycled. In an effort to reduce general waste and increase the recycling rate of plastic bottles, waste receptacles for plastic bottles with leftover beverages have been installed in front of security checkpoints since fiscal 2015.

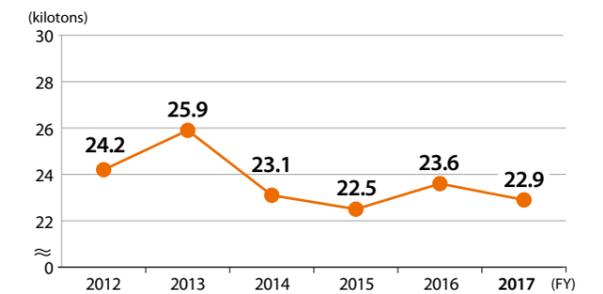
We also recycle paper that is shredded at the airport, and about 200 tons of shredded paper were recovered in fiscal 2017.

Led by the Eco-Airport Development and Planning Council (see p. 41), recycling initiatives have been expanded to include the airport as a whole. We will pursue the reduction of waste and promote our recycling initiatives in cooperation with airport-related business entities.

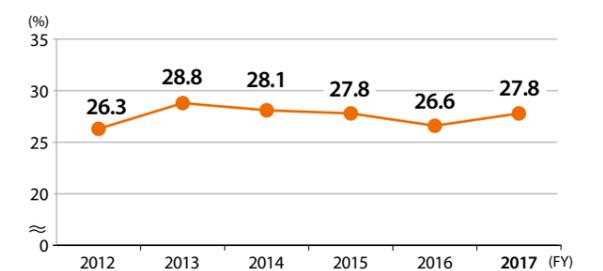


Sorted recycling bins in passenger terminals

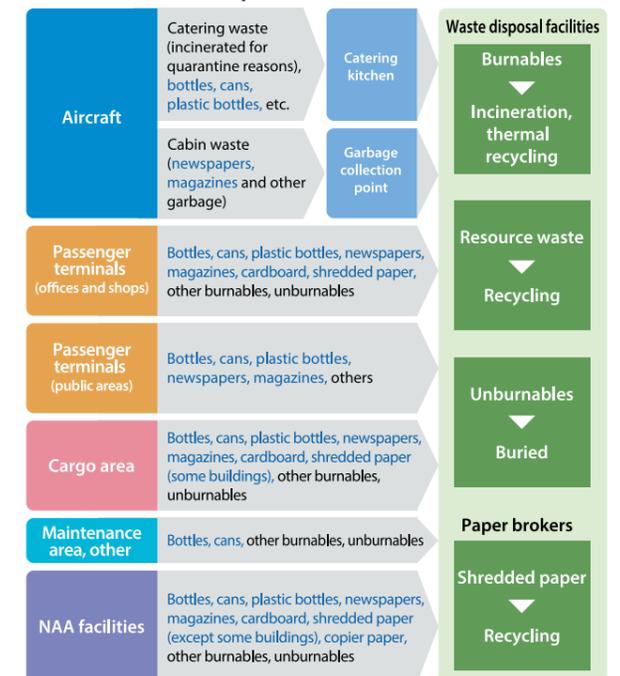
Change in General Waste Incinerated (Total)



Change in Waste Recycling Rate



Flowchart for Disposal and Recycling of General Waste from Narita International Airport



* Blue text: Recyclable materials

Composting of Kitchen Waste

Some of the food waste from airport restaurants and the NAA cafeteria is composted. In fiscal 2017, approximately three tons of compost from about 14 tons of raw garbage was produced. Compost is then used in greening projects in and around the airport, or given away to the public at events in the airport or local community. Many people look forward to this annual supply.



Reducing and Reusing Construction Waste

Overlay Method Reduces Construction Waste

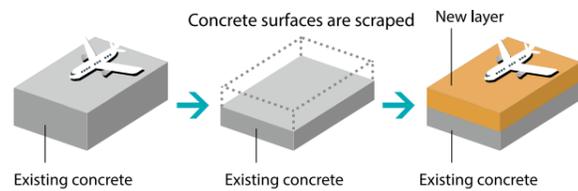
The aircraft parking area (apron) is paved with solid concrete, but must be repaved occasionally due to deterioration. During such major pavement projects, conventional methods call for existing pavement to be torn up completely. Replacing the pavement with new concrete is a long-term project and generates a vast quantity of waste material.

Consequently, we developed its own method known as the Bonded Overlay Method. This involves scraping the existing concrete surface, overlaying a thin layer of concrete on it, and bonding the new material. Compared with conventional methods, this technique decreases much construction waste and the amount of concrete used.



Repair work using the bonded overlay method

Bonded Overlay Method



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| <p>Advantage 1</p> <p>Waste reduction</p> <p>Concrete rubble reduced to 1/20th</p> <p>* Compared to full replacement of concrete paving slabs with a thickness of 30 cm</p> | <p>Advantage 2</p> <p>Shorter construction period</p> <p>No need to remove existing concrete</p> | <p>Advantage 3</p> <p>Cost reduction</p> <p>Enables less concrete to be used</p> |
|---|--|--|

Recycling Construction Waste

Concrete and asphalt rubble produced by upgrading the aprons and runways is crushed at the airport recycling plant and used as aggregate in airport projects. Approximately 79,000 tons of construction waste were processed in fiscal 2017.



Recycling plant

Effective Utilization of Grass Cuttings

The green spaces around the runways are mowed several times a year, generating approximately 4,200 tons of grass cuttings in fiscal 2017.

The grass cuttings are given to farmers around the airport, and some of them are used effectively as feed.



A round bale of grass mowed around a runway

Sorting and Recycling at NAA Office

At the NAA Head Office Building, waste is sorted into ten categories (bottles, cans, plastic bottles, newspapers, magazines, cardboard, copier paper, shredded paper, burnables, and unburnables). Of these, all are recycled except for burnables and some of the unburnables.

Special locked boxes are placed in the copy rooms in the building and other offices to collect used paper. Approximately 19 tons of used paper was collected in fiscal 2017. The paper was recycled at pulp mills into toilet paper for use in restrooms at the NAA Building and other locations.

We have taken other recycling measures such as collecting spent tape cartridges from label printers for return to manufacturers.

We will pursue an increase in our recycling rate through waste reduction measures such as steps toward a more paperless office and in-house awareness programs.



Tape cartridge collection box set up in the office



Recycling bin

Green Purchasing

We promote green purchasing, in accordance with the Green Purchasing Law,* when procuring products or ordering construction. In addition to quality and price concerns, we also select items and services that place the least possible burden on the environment.

In fiscal 2018, green purchasing was followed for 222 designated procurement items, including goods such as copy paper, stationery, and office equipment, as well as services. In addition to these items, we also call for selecting eco-friendly products such as Eco Mark products and those listed on the eco-product database of Green Purchase Network (GPN).



Eco-products (NAA work uniforms)



Eco-products (stationery)

* The Green Purchasing Law (Law Concerning the Promotion of Eco-Friendly Goods and Services by the State and Other Entities) encourages the procurement of eco-products (items and services that reduce environmental impact) and provides information on eco-product procurement, aiming for a society based in sustainable development.

Water Conservation & Recycling

At Narita International Airport, which is used by a huge number of customers, 2.18 billion liters*¹ of water (equivalent to the volume of 6,130 25-meter pools) is consumed per year.

In passenger terminals and other facilities, we strive to conserve water through motion sensor faucets, water-saving toilets, and so on. Also, we reduce the amount of potable water usage by utilizing grey water*² (recycled water) that is treated rainwater and kitchen wastewater. In fiscal 2017, 620 million liters of grey water were produced and consumed. This accounts for about 30% of the water spent in Narita Airport.

The Eco-Airport Master Plan (FY 2016–2020) sets a target of reducing potable water usage per airport user by 3% from the fiscal 2015 level (30.9 liters/person) by 2020. As a result of these initiatives, water usage decreased to 28.5 liters per person in fiscal 2017.

Going forward we will continue promoting the reduction of potable water usage.

*¹ Includes aviation fuel facilities, etc., outside of the airport site

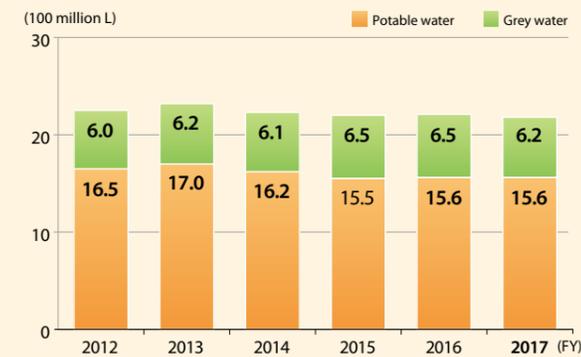
*² Grey water is treated rainwater and wastewater for recycling. It is called "grey water" because it is midway between potable water and wastewater.

Goals and Performance

Reduction of Potable Water Use (per airport user)



Total Water Consumption



Kitchen wastewater treatment facility

Recycling Wastewater from Restaurant Kitchens

Kitchen wastewater from restaurants in passenger terminals contains many impurities such as fat and organic substances. Therefore, it is treated at the Kitchen Wastewater Treatment Facilities to remove impurities through biodegradation. Afterwards, water is taken to the Grey Water Production Facilities where it is disinfected and purified through membrane separation and activated carbon absorption, allowing it to be reused as grey water.

Grey water is reused for flushing toilets in passenger terminals and at the NAA Building. Approximately 180 million liters of grey water was generated from restaurant wastewater in fiscal 2017.

Rainwater Recycling

Oil separation plant and holding pond have been installed at Narita International Airport to prevent rainwater runoff from affecting the quality and volume of water at downstream waterways. Rainwater is collected in a holding pond with a capacity of approximately 610,000 cubic meters located on the western side of Runway A and flows out from there into drainage canals outside the airport.

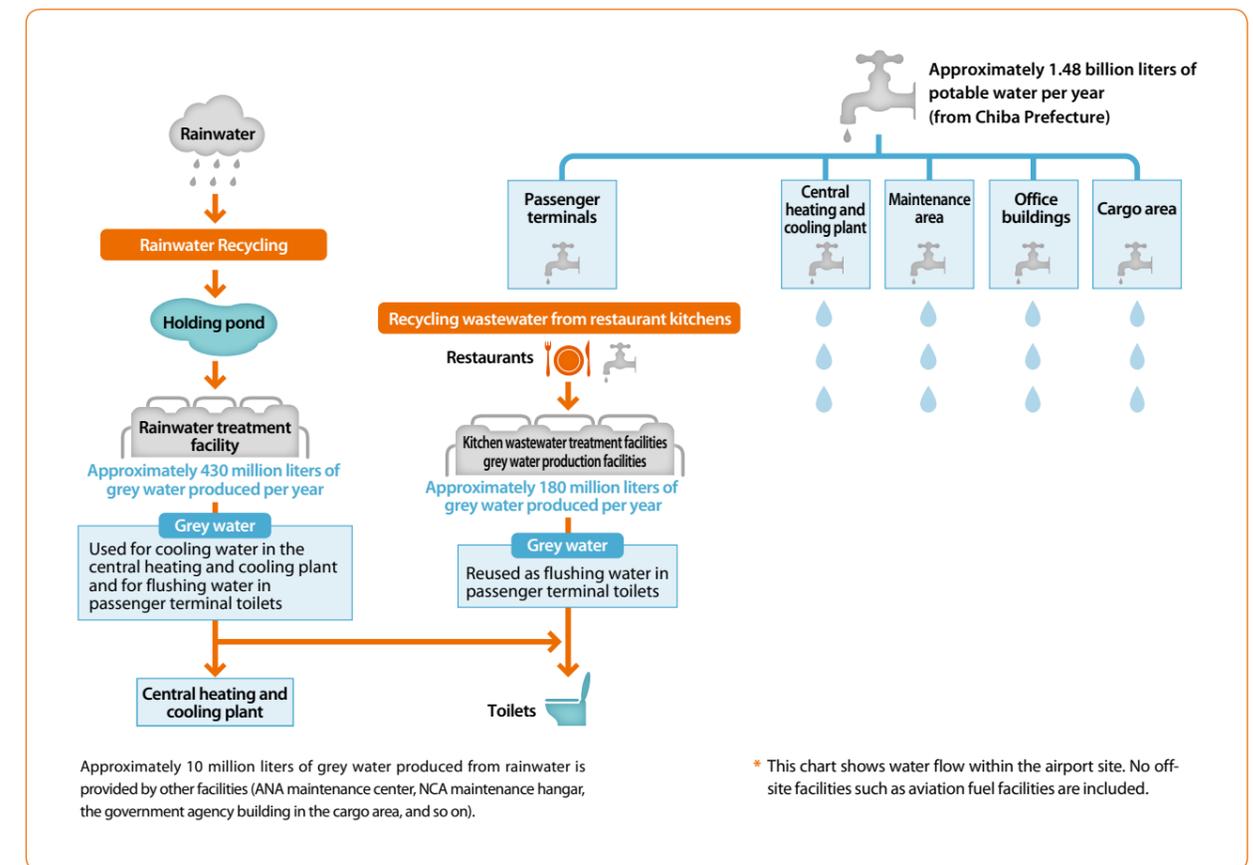
In order to use rainwater effectively, we operate a treatment facility that purifies rainwater runoff.

Rainwater is collected in the pond, converted into grey water at the facility, and used as cooling water in the Central Heating and Cooling Plant as well as flushing water in passenger terminal toilets. In fiscal 2017, the rainwater treatment facility produced about 430 million liters of grey water.



Holding pond

Water Consumption at Narita International Airport* (Actual results for FY 2017)



* This chart shows water flow within the airport site. No off-site facilities such as aviation fuel facilities are included.