English Environmental Report Digest 2021

Narita Airport

What is Sustainable Airport

We Accelerate the Decarbonization to Become a “Sustainable Airport,” beyond an “Eco-Airport”

Narita International Airport marked its 43rd anniversary since its opening in 1978. In fiscal 2021, aircraft movements and passenger numbers declined significantly since the Coronavirus (COVID-19) pandemic began in 2020. The aviation industry including Narita International Airport Corporation (NAA) continues to face a severe business environment.

Until now, we have persevered through numerous decreases in demand caused by the international situation and natural disasters. Furthermore, COVID-19 pandemic which caused such long-term restrictions on the movement of people across the globe is unprecedented experience. All the same, in times of crises, Narita International Airport has undergone strong recoveries supported by many people such as local residents and stakeholders, and grown as the gateway to Japan. We are confident that we will overcome the present crisis, resume normal operation, and develop further. And Narita International Airport will maintain safe and secure operation as a critical infrastructure to support the transportation of goods and movement of people.

At the same time, with an eye on the future, we must steadily proceed initiatives such as the functionality enhancement at Narita International Airport, including the construction of a new runway. In promotion of the functionality enhancement, we will seek a way to coexist with local communities, make every effort to obtain the understanding of stakeholders, and take measures to reduce our environmental impact.

At Narita International Airport, we have promoted various initiatives based on the following four pillars: Community environment initiatives, resource recycling initiatives, climate change initiatives, and environment management. For climate change in particular, more frequent and intense natural disasters caused cutting emissions to be one of the most critical issues, which resulted in calls for aviation decarbonization. Thus, NAA released "Sustainable NRT 2050" in March 2021 to promote further climate change initiatives. To realize a sustainable society and become one of the world leading airports, we have set medium- to long-term goals that include a net-zero target, which is the first among airport operators in Japan, and countermeasures to decrease CO_2 emissions with stakeholders throughout the airport.

The Eco-Airport Master Plan was terminated in fiscal 2020, but we will successively conduct our environmental measures based on the above categories under the framework of “Sustainable NRT 2050.” With stronger relationships with a wide variety of stakeholders, we strive to achieve our goals to become a sustainable airport which grows in an environmentally-friendly and ethical way.

Narita aims to be a Sustainable Airport

In the past, we promoted initiatives to become an environmentally-friendly "Eco Airport." From now on, we aim to go beyond and evolve into a long-lasting “Sustainable Airport.”

Coordination between NAA and Airport-Related Business Entities

NAA and the Eco-Airport Development and Planning Council, an organization representing airport-related business entities, play a central role in promotion of environmental initiatives throughout the airport as a whole.

Our Contribution to the Sustainable Development Goals

According to the targets of the United Nations Sustainable Development Goals (SDGs), we categorized our environmental activities. Icons corresponding to each goal are shown at the top of the Activity Highlights pages. Narita International Airport contributes to the achievement of the SDGs with our stakeholders*.

*“Our stakeholders” refers to passengers, local residents, local government, airport-related business entities and their employees, and all other persons associated with the airport.

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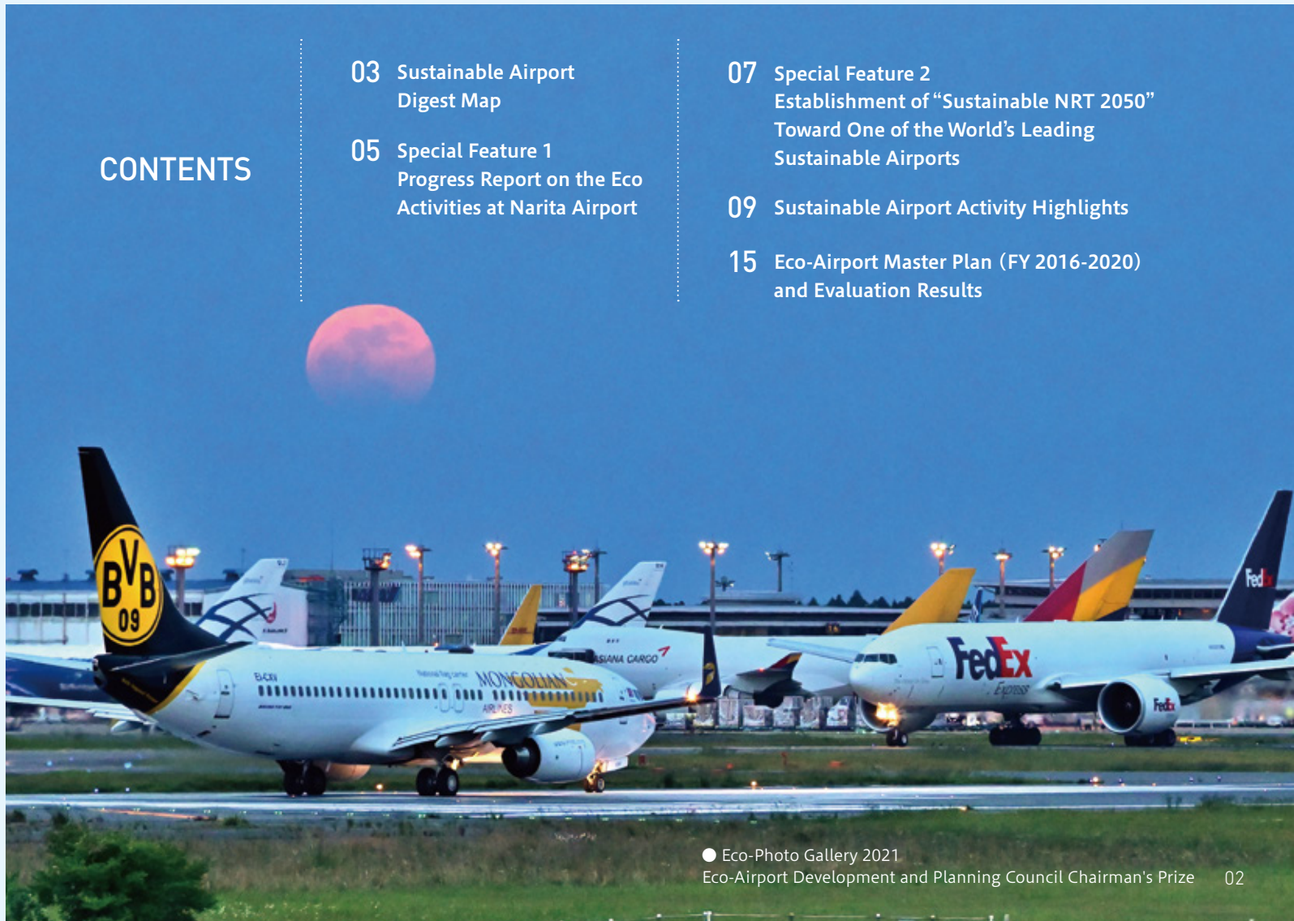
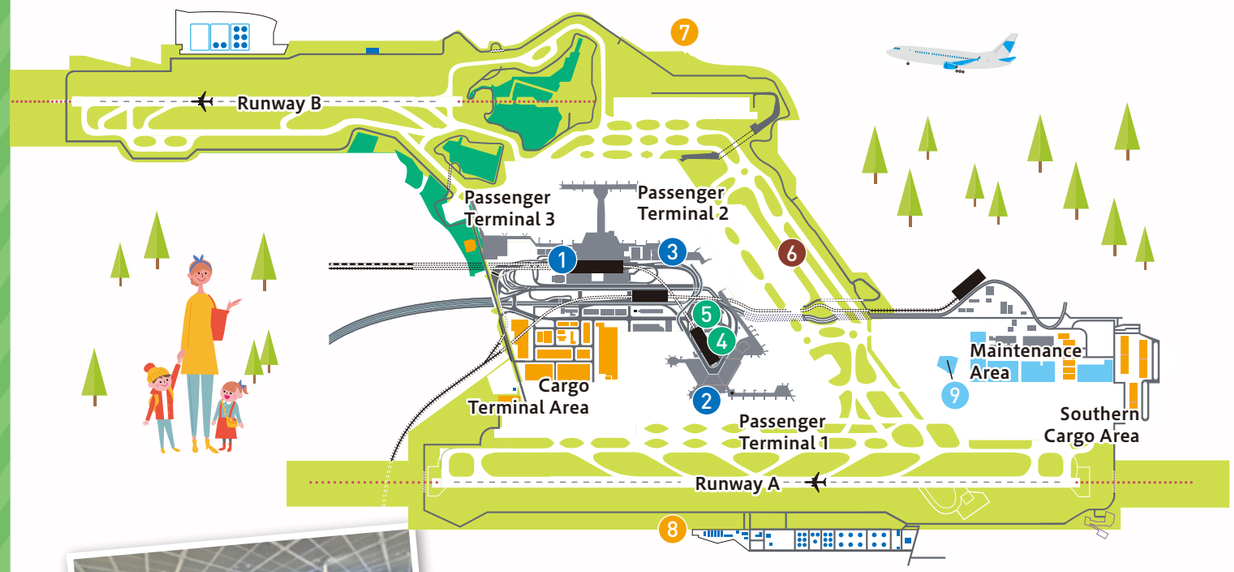


● Eco-Photo Gallery 2021
Eco-Airport Development and Planning Council Chairman's Prize

DIGEST MAP

Sustainable Airport Digest Map

Principal Environmental Initiatives at a Glance



In Passenger Terminals

1 General Waste Sorting

Waste is sorted for recycling into six categories in terminal lobbies, and 10 categories in office areas.

2 Solar Power Panels

Solar power panels at passenger terminal buildings and the NAA Building generate electricity for lighting in those buildings.

3 Kitchen Wastewater Treatment Facilities and Grey Water Production Facilities

Waste water from restaurants in terminals is treated and reused as flushing water in airport toilets.

For Vehicles

4 Fast Chargers for Electric Cars

For the convenience of airport users driving electric vehicles (EVs), fast chargers are provided in parking lots P1 and P2.

5 Hydrogen Station

This station supports drivers of fuel cell vehicles, which are becoming popular in recent years.

Introduction of Low Emission Vehicles

We promote the introduction of low emission vehicles such as EVs as well as fuel-efficient and low-exhaust cars.

On Taxiways

6 LED (Light-Emitting Diode) Lighting

Highly energy-efficient LED lights have been installed for taxiways and some parts of lighting in passenger terminal buildings.

At Airport Facilities

7 Recycling Plant

Asphalt, concrete, and other construction waste is crushed and recycled into paving material.

8 Rainwater Treatment Facility

Rainwater from a holding pond is treated and reused for cooling water in the Central Heating and Cooling Plant and for flushing water in the passenger terminal toilets.

For Aircraft

9 Noise Reduction Hanger (NRH)

A hangar-type noise reduction facility drastically decreases sound levels of aircraft engine testing.

Landing Charge System for International Flights Based on the Narita Aircraft Noise Index

To encourage airlines to use quieter aircraft, we have introduced a noise-related landing charge system for international flights. These aircraft also contribute to the reduction of CO_2 emissions.

Around the Airport

Noise Mitigation Embankments

Mitigation embankments and wooded buffer zones have been constructed to reduce aircraft noise.

Greenport Eco-Agripark

On the noise mitigation land, we maintain a hands-on nature conservation park with a rich diversity of natural life.

Environment Monitoring

To understand the environmental impacts from airport operations, we take year-round and short-term noise, air quality, and water quality measurements and disclose the results on our website.

On Aprons

Construction Waste Management

We reduce construction waste for apron pavement repair work through a technique developed by NAA called “Bonded Overlay Method.”

GPU (Ground Power Units)

Quiet, zero-emission GPUs have been installed at fixed stands of passenger terminals and in cargo areas to provide electricity and air conditioning to parked aircraft.

Progress Report on the Eco Activities at Narita Airport

Achieved — Numerical targets have been achieved. Qualitative targets can be evaluated as achieved in a comprehensive manner.

Review of the Eco-Airport Master Plan (FY 2016-2020)

To achieve the Eco-Airport Vision 2030, Narita International Airport has set numerical targets for five years from fiscal 2016 and promoted specific measures. Since fiscal 2020 is the final fiscal year of the targets, we hereby report the results of our initiatives.
For most numerical targets where fiscal 2015 is used as the benchmark, we transitioned toward achievement up until fiscal 2019. In fiscal 2020, however, aviation demand drastically dropped due to the COVID-19 pandemic, and items assessed in per unit such as flights and airport users ended in abnormal figures. Consequently, we evaluated our progress based on fiscal 2019 results, using fiscal 2020 figures as reference values.

*For other initiative results, please refer to pp. 15-18 of this brochure.

Achieved — Community Environment Initiatives

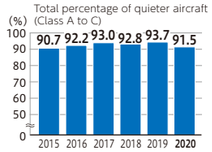
Target Reduce environmental impact from aircraft noise

We have addressed the reduction of aircraft noise, which has the greatest impact on airport surrounding areas, with the focus on the introduction of quieter aircraft. As a result, the introduction rate in FY 2019 increased to 93.7%. In FY 2020, a drastic decline in the number of aircraft movements and changes in airlines' fleet composition, decreased the introduction rate from FY 2019.

Introduction rate of quieter aircraft

93.7% FY 2019

Total percentage of quieter aircraft (Class A to C)

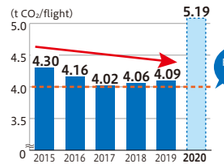


*Including domestic flights

Climate Change Initiatives

Target Reduce airport CO_2 emissions per flight by 7%

In order to cut airport emissions, we encouraged the introduction of fuel-efficient aircraft and use of GPUs* for parked aircraft. Nevertheless, the reduction rate ended up at 4.9% (4.09 t CO_2/flight) in FY 2019. In FY 2020, the number of aircraft movements significantly declined and so did airport emissions. However, as the reduction of emissions from the facilities remained at a certain level, CO_2 emissions per flight increased compared to FY 2015.



Airport CO_2 emissions (per flight)

4.9% reduction FY 2019

*Ground Power Unit (GPU) is equipment for supplying necessary air conditioning and electricity to aircraft parked on the ground.

Achieved — Environment Management

Target Engage in active dialogue with stakeholders

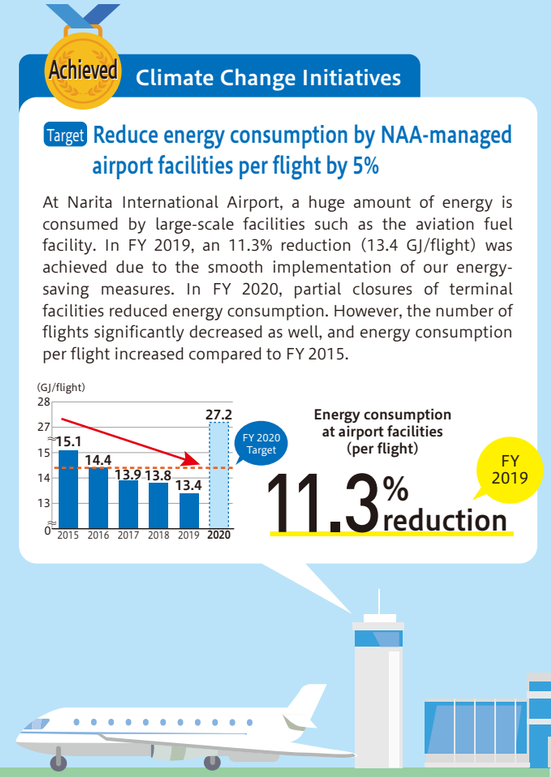
We held interactive dialogue with airport-related business entities through the Eco-Airport Development and Planning Council, and proactively implemented cleanup drives and a lights-off campaign. We also disseminated information about these initiatives on our website and other media.

Achieved — Environment Management

Target Contribute to reducing the environmental impact in cooperation with airports in Japan and abroad

We exchanged information with major airports in Japan based on necessity. With airports abroad, we have promoted deeper cooperation through ACI* activities.

*ACI (Airport Council International) is a trade association of the world's airports which work together to promote environmental conservation as well as safety, convenience, and efficiency in international air transport.



Achieved — Climate Change Initiatives

Target Reduce energy consumption by NAA-managed airport facilities per flight by 5%

At Narita International Airport, a huge amount of energy is consumed by large-scale facilities such as the aviation fuel facility. In FY 2019, an 11.3% reduction (13.4 GJ/flight) was achieved due to the smooth implementation of our energy-saving measures. In FY 2020, partial closures of terminal facilities reduced energy consumption. However, the number of flights significantly decreased as well, and energy consumption per flight increased compared to FY 2015.

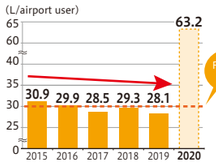
Energy consumption at airport facilities (per flight)

11.3% reduction FY 2019

Achieved — Resource Recycling Initiatives

Target Reduce potable water usage per airport user by 3%

In addition to saving water in terminals, portable water usage has been reduced by utilizing grey water* that is treated rainwater and kitchen wastewater. As a result, potable water usage was reduced by 9.1% (28.1 L/airport user) in FY 2019. In FY 2020, the dramatic decrease of passenger numbers reduced potable water usage. But, potable water usage per airport user increased compared to FY 2015 as a certain amount of water is necessary for facility operations.



Potable water usage (per airport user)

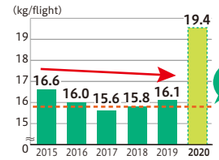
9.1% reduction FY 2019

*1 Purified water from rainwater and restaurant wastewater used as recycled water
*2 Including aircraft fueling facilities, etc. outside of airport facilities

Community Environment Initiatives

Target Reduce air pollutant (NOx) per flight by 5%

Narita has a long history of monitoring the impacts of airport and aircraft operations on air quality. In FY 2019, the reduction ended up at 3.0% (16.1 kg/flight) despite of our efforts. In FY 2020, the NOx output of the entire airport declined owing to significant decrease of aircraft movements. However, NOx emissions per flight increased compared to FY 2015 due to changes in airlines' fleet composition and increased number of engine tests.



Nitrogen oxide (NOx) (per flight)

3.0% reduction FY 2019

Change in general waste incinerated (per airport user)

Resource Recycling Initiatives

Target Reduce general waste incinerated per airport user by 5%

4.4% reduction FY 2019

We have promoted our 3R initiatives (Reduce, Reuse, and Recycle) for waste generated from airport operations, such as a revamp of recycling bins before security checkpoints so passengers can pour out leftover liquid and separate plastic bottles. Nonetheless, the reduction rate of general waste incinerated per airport user ended at 4.4% (0.43 kg/airport user) in FY 2019. Moreover, we encouraged the 3Rs for waste produced during airport operations, but the reduction ended at 4.4% (0.43 kg/airport user) in FY 2019. In FY 2020, the fall in passenger numbers decreased the volume of general waste incinerated. However, incinerated waste from the cargo operation that remained at the same level boosted general waste incinerated per airport user compared to FY 2015.

Establishment of "Sustainable NRT 2050"

Toward One of the World's Leading Sustainable Airports

On March 25, 2021, NAA released "Sustainable NRT 2050." This is the first time in Japan that an airport operator has set a net zero*1 target for the operating company and numerical targets for reducing CO_2 emissions among its stakeholders for the entire airport. To achieve our goals, we will address climate change mitigation with all stakeholders involved in our airport.

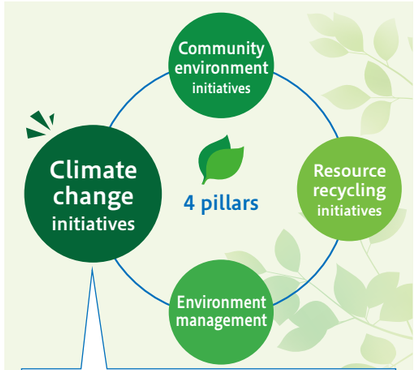
*1 Net zero: The introduction of energy efficiency and renewable energy to reduce CO_2 emissions and then balancing CO_2 emissions through carbon fixation and removal, etc. to bring CO_2 emissions effectively to zero. (credit purchase is not included)

FY 2030 Targets (Mid-Term)

- NAA Group will reduce its CO_2 by 30% compared to fiscal 2015.
- We will aim to reduce Narita Airport's CO_2 emissions per flight by 30% compared to fiscal 2015.
- We have set out our "Next Actions" for NAA to further reduce CO_2.
- Our Functionality Enhancement at Narita Airport will continue to promote initiatives to reduce environmental impact.

FY 2050 Targets (Long-Term)

- NAA Group will achieve net zero corporate CO_2 emissions.
- We will aim to reduce Narita Airport's CO_2 emissions by 50% compared to fiscal 2015.



We have been carrying out environmental initiatives to reduce our environmental impact in four categories: Community environment initiatives, resource recycling initiatives, climate change initiatives and environment management. "Sustainable NRT 2050" sets medium- and long-term numerical targets for reducing CO_2 emissions to pursue and continue our efforts to further enhance climate change initiatives.

Next Actions

NAA will strive to raise awareness among our employees and achieve the following goals as soon as possible.

Carbon neutralization of NAA Building	●Carbon neutralize NAA Building. (Conversion of electricity to renewable energy, offsetting CO_2 emissions associated with air conditioning*5)
Zero CO_2 business trip for NAA employees	●Reduce NAA employees' CO_2 emissions from business travel to zero through offsetting.
Promotion of low-carbon commuting for NAA employees	●Promotion of teleworking and switching to low carbon transport will reduce CO_2 emissions from NAA employees commuting by 50%.

Functionality Enhancement at Narita Airport

We will promote initiatives for reducing the impact on the environment of our Functionality Enhancement at Narita Airport.

Reduced taxiing distance	●Reduce aircraft taxiing distance by 30% by improving facilities.
Reduced environmental impact during construction	●Ensure the use of emission-control construction machinery, etc. ●Use low-carbon construction methods (utilization of information and communication technology [ICT] to reduce labor, enhance development and achieve more efficiency as well as reduce the quantity of heavy machinery, etc.) ●Promote the early greening of construction surfaces, the development of green belts and conservation of low-lying wetlands.
Effective use of logged timber	●Recycle logged timber generated by construction.

*5 Offset: Compensating for the volume of CO_2 emissions that are difficult to reduce despite all efforts by carbon offset credit purchases and investing in CO_2 reduction activities.

Joint Initiatives with Our Stakeholders

In collaboration with our stakeholders, we will undertake multilateral studies and encourage measures to promote the reduction of CO_2 emissions.

2030	2050	
Development of a framework for accepting SAF*6	Development of a framework for accepting next-generation aircraft	●Work with stakeholders to provide the necessary acceptance framework and encourage the introduction of SAF. ●Develop the necessary framework for accepting next-generation aircraft (electric and hydrogen powered) while monitoring their development and use.
Convert forklifts to low-emission	Convert GSE*7 vehicles to zero-carbon	●50% of forklifts to be low-emission by FY 2030. ●Improve the efficiency and decarbonization of the entire GSE fleet by promoting the sharing and zero-carbonization of GSE vehicles used for ground handling operations.
Introduction of measures to encourage lower stakeholder CO_2 emissions		●Consider various measures to contribute to the reduction of CO_2 emissions of stakeholders. (e.g., discounted parking fees for holders of EV/FCV [fuel cell vehicle] certification cards)

*6 SAF: Abbreviation for Sustainable Aviation Fuel. A jet fuel produced from sustainable sources with low CO_2 emissions in the process from production and collection of raw materials to combustion.
*7 GSE: Abbreviation for Ground Support Equipment. The general term for equipment used in ground handling operations.

●*1, *2, and *4 are definitions based on the Airports Council International (ACI)

Initiatives for "Sustainable NRT 2050"

NAA Group will contribute to the realization of a sustainable society starting with a decarbonized society in cooperation with our stakeholders.

NAA Group's Initiatives

Introduction of Advanced Technologies

Under the leadership of NAA, the airport will proactively introduce advanced technology to help reduce CO_2 emissions.

2030	2050	
Carbon neutral buildings*2	Convert buildings to ZEBs*3 and zero-carbon*4 energy supply	●Continue to promote energy efficiency. ●Newly constructed facilities and reconstructed buildings will be made carbon neutral and converted to ZEB (Net Zero Energy Building) by FY 2050. ●Use zero-carbon fuels to supply energy for air conditioning and other applications.
Convert 20% of purchased electricity to renewable energy	Convert 100% of purchased electricity to renewable energy	●Introduce renewable energies sequentially and convert 20% of purchased electricity to renewable energy by FY 2030 and 100% by FY 2050.
80% of aviation lighting to be converted into LED	100% of aviation lighting to be converted into LED	●Promote the gradual conversion of aviation lights to LED, with 80% of aviation lights to be converted to LED by FY 2030 and 100% by FY 2050. ●All lights to be installed will be LED for further Functionality Enhancement at Narita Airport.
Convert all business vehicles other than special-purpose vehicles to low-emission vehicles	Convert all business vehicles to zero-carbon	●Continue to promote the use of low-emission vehicles for business use, and by FY 2030, all vehicles except special vehicles such as airport fire trucks and snow removal vehicles will become low-emission vehicles. ●Convert all business vehicles to zero carbon by FY 2050.

*2 Carbon Neutral: The introduction of energy efficiency and renewable energy to reduce CO_2 emissions and then offsetting CO_2 emissions through carbon fixation and removal, etc. as well as carbon offset credit purchases to bring CO_2 emissions effectively to zero.
*3 ZEB: Abbreviation for Net Zero Energy Building. A building that aims to achieve a zero annual primary energy consumption balance by introducing renewable energy sources in addition to energy conservation through architectural design and the use of natural energy.
*4 Zero Carbon: Achieving zero CO_2 emissions by using renewable energy and biofuels.

COLUMN

Hosting the "Sustainable NRT 2050" Explanatory Meeting

In April 2021, we held "Sustainable NRT 2050" explanatory meetings in Narita City and Sammu City to introduce our various initiatives to reduce the environmental impact at Narita International Airport. At J.F. Oberlin University, we gave a lecture on our airport management and environmental initiatives starting with Sustainable NRT 2050, then our past environmental initiatives and future outlook in Narita International Airport.

A WORD FROM OUR STAFF

Addressing the reduction of environmental impact together with our stakeholders

KATAOKA Sho
Airport Sustainability Office
Planning Department, NAA

Regarding the explanatory meetings, one of the objectives was to strengthen cooperation with stakeholders. We hope to address the reduction of our environmental impact with all the stakeholders involved.

Sustainable Airport

Activity Highlights

Based on the Eco-Airport Master Plan, Narita International Airport engages in initiatives to combat global warming, contribute to the local environment, and implement resource recycling. Here are some of our activities to reduce the environmental impact of airport operations.

Task Reduce environmental impact at airport facilities

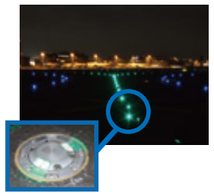
Reduce Energy Consumption with LEDs

At Narita International Airport, many types of lighting are used including taxiway lights and lighting in passenger terminals. Currently, in consideration of convenience, running costs, and the environmental aspect, we are switching to light-emitting diode (LED) light bulbs.

Measure 1

On Taxiways

The taxiway lights that navigate aircraft have been replaced from halogen bulbs to LEDs, which have longer lifespans and consume one tenth of the electricity of conventional lamps. As of the end of fiscal 2020, LEDs accounted for 70.8% of Taxiway edge lights and Taxiway center line lights.



Measure 2

In Passenger Terminals

In Passenger Terminals 1 and 2, lighting such as ceiling lights, signs outside of buildings, advertising boards, and information signs have been switched to LEDs. Seven thousand units are to be replaced with LED lighting in September 2022.

A WORD FROM OUR STAFF

Switching to LEDs cut 366 tonnes of airport emissions

IGARASHI Yumi
Electrical Systems, Facilities Management Department
NAA

In fiscal 2020, we achieved a CO_2 reduction of 366 tonnes by replacing 3,500 lighting units with LEDs. In addition, we strive to reduce power consumption and CO_2 emissions by introducing solar power generation and energy-saving equipment.

Task Reduce CO_2 emissions from aircraft

SAF Dramatically Lowers CO_2 Emissions

At Narita, where aircraft emissions account for 70% of the airport's total carbon emissions, industry-wide initiatives are required. We proactively carry out measures to reduce CO_2 emissions and become a sustainable airport.

Measure 1

Introduction of Sustainable Aviation Fuel (SAF)

Sustainable Aviation Fuel (SAF)*, which is expected to reduce CO_2 emissions, was first introduced in Narita International Airport by All Nippon Airways Co., Ltd. in October 2020. Certified as having the equivalent quality to fossil-based fuel, the supply of SAF is now realized at Narita via the airport's hydrant system.
Narita is the first Japanese airport to supply SAF through its hydrant system. SAF will be used for scheduled flights.

*SAF is produced from feedstocks such as vegetable oils, animal fats, and waste cooking oils that are combined into traditional jet fuels. SAF is certified as having the same characteristics and meeting the same specifications as conventional aviation fuel.

A WORD FROM OUR STAFF

To supply SAF through our hydrant system

FUJIHIRA Harutaka
Administration, Aviation Fueling Business Department, NAA

Airlines consider the introduction of SAF as an urgent task. The launch of SAF supply at Narita made me recognize the importance of establishing an SAF delivery system. We will encourage airlines to promote the use of SAF.

Task Reduce noise and CO_2 emissions from parked aircraft

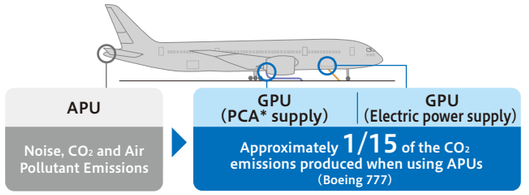
GPU Usage Cuts Carbon Emissions to 1/15

We encourage airlines to use Ground Power Units (GPUs) for providing electricity and air conditioning to parked aircraft. GPU usage produces only one fifteenth of the emissions generated from APU (Auxiliary Power Units) operation, and reduces noise as well.

Measure 1

Encouraging GPU Usage

APU operation generates gases causing global warming and air pollution. Consequently, the use of APUs is restricted and the use of GPUs is encouraged in passenger terminals and cargo areas. The GPU usage rate in fiscal 2020 was 89.6%.



*PCA: Pre-Conditioned Air

Task Minimize the area impacted by aircraft noise

Establishing Flight Corridors

To minimize the area impacted by aircraft noise, flight corridors before landing and after takeoff have been established. Aircraft are urged not to deviate from these corridors.

Measure 1

Monitoring Flight Corridors

In case of deviation without any valid reasons such as weather or safety, their flight numbers and reasons are disclosed to the public. Also, the Ministry of Land, Infrastructure, Transport and Tourism issues a directive to the airlines concerned. In fiscal 2020, the number of aircraft deviating without valid reason was 5 (0.005%).

Task Effective use of logged timber and coexistence with local communities

Effective Use of Cut Trees

The functionality enhancement at Narita Airport is estimated to require the clearing of 150,000 tonnes of trees. Instead of just disposing of the trees as waste, we recycled some of those cut down during the preliminary survey into wood chips and SDG lapel pins.

Measure 1

Free Distribution of Wood Chips

NAA held an event to distribute free wood chips made from felled cedar, cypress, and mountain trees, which attracted many residents. Wood chips were also used for walkways in Narita *Sakura no Yama* (Cherry blossom mountain) and at the castle ruins in Tako Town. We have realized both effective resource utilization and coexistence with local communities.

Measure 2

Recycled SDG Lapel Pins

Waste recycling is one of our initiatives to create a sustainable society. We created SDG lapel pins from cut trees to raise awareness of employees as a reminder of our purpose.

A WORD FROM OUR STAFF

Seeking ways to use our precious resource wisely

TSUKINAGA Shota
Community Environment, Community and Environmental Affairs Department, NAA

The repurposing our cut down trees is a unique measure for Narita that aims to be a sustainable airport. Besides creating tangible items, we would like to seek other ways to make use of tree waste such as bioenergy.

Activity Highlights

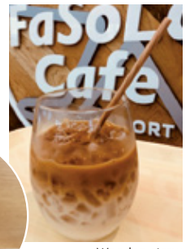
Task Address the plastic waste problem

Eliminate Disposable Plastic Products for 100% Sustainability

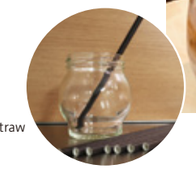
Since the announcement of the “Plastic Smart” initiative at Narita Airport, we aim to replace materials used in disposable plastic products distributed at NAA-managed stores and lounges to recyclable or reusable materials by fiscal 2025.

Measure 1 Paper and Wooden Straws

Since September 2019, all five NAA managed-restaurants and lounges have replaced their plastic straws with paper ones.



Wooden straw



Paper straw

Measure 2 Reusable Shopping Bags and Sustainable Packaging Materials

As charging for plastic bags began on July 1, 2020, we produced Narita Airport original reusable shopping bags (eco-bags). A wrapping material for NAA calendars was switched to paper from plastic. And some take-out lunch boxes sold to employees are made of an eco-friendly material called "Bio Delica*."

Narita Airport original eco-bags

Paper wrapping for a calendar

*Biomass materials made of fossil-based PPF (Polypropylene Terephthalate) and plant-based (e.g. sugar cane) plastic

Task Introduce sustainable beverage containers

Eliminate Petroleum-Based Plastic Bottles by 2025

As a part of our “Plastic Smart” initiatives, we are reducing petroleum-based plastic bottles at the NAA Building.

Measure 1 Sustainable Beverage Containers

At the NAA Building, beverages sold in vending machines were completely switched to eco plastic bottles, cans, and bottles. Petroleum-based plastic bottles sold at the kiosk were decreased by 50%. Those sold in airport vending machines will follow suit gradually. Fossil-based plastic bottles sold at the kiosk in the NAA building were also cut by 50%. We set a target to eliminate petroleum-based plastic bottles by the end of March 2025.

Measure 2 Sustainable Packaging Innovation

"*Kusui* (sky water)" is an original natural mineral water available at Narita Airport. The 30% bioplastic PET bottle and cap together with thinner labels printed in biomass ink have cut the use of fossil-based plastic by 20%. *Kusui* in a label-free two-liter bottle (sold by carton only) was also launched.

A WORD FROM OUR STAFF

Repackaging of *Kusui* to be more eco-friendly

TOYONAGA Hideyuki
Vender Business, Beverage Sales Division
Greenport Agency Co., Ltd.

In the repackaging of *Kusui*, we shared information and consulted with manufacturers, aiming for the lowest possible carbon footprint. Consequently, innovations such as using biomass and lightweight packaging solutions for the bottle were adopted.

Task Resource recycling

3Rs of Waste

To reduce the environmental impact, the 3Rs (Reduce, Reuse, and Recycle) are encouraged when handling waste produced by airport operation.

Measure 1 General Waste Sorting

The greatest volume of general waste produced at Narita International Airport is aircraft cabin waste*. Waste such as inflight magazines, bottles, cans, and plastic bottles are sorted and recycled by some airlines in spite of limited onboard sorting space and time available for cabin cleaning.

Meanwhile, general waste from passenger terminals and the cargo and office areas is sorted for recycling. To reduce general waste and increase the recycling rate of plastic bottles, waste receptacles for leftover beverages have been installed before security checkpoints, where many plastic bottles with leftover are thrown away, since fiscal 2015. We also recycle paper that is shredded at the airport, 170 tonnes in fiscal 2020.

*Except catering waste that must be incinerated under quarantine laws

A WORD FROM OUR STAFF

Separate collection of waste for the 3Rs

ITO Chiyomi
Narita Kuko Biseisha Co., Ltd.

To promote the 3R initiative, we ensure the sorting of office waste into burnable, recyclable, and industrial waste. At the terminals, I am encouraged when I see some small children sorting their waste.

Task Reduce waste by recycling

Construction Waste Recycling at the Airport

Concrete and asphalt rubble produced by upgrading aprons and runways is crushed at the on-site recycling plant and used as aggregate in airport projects. Seventy-seven thousand tonnes of construction waste were processed in fiscal 2020.

Recycling plant

Task Utilize grass cuttings from green spaces around the runways

Use the Grass Cuttings as Feed

The green spaces around the runways are mowed several times a year, generating 3,400 tonnes of grass cuttings in fiscal 2020. The grass cuttings are given to farmers around the airport, and some of them are used effectively as feed.

Round bales of grass mowed around a runway

Activity Highlights

Task Providing a more pleasant airport environment for our customers

Cleanup Drives in and around the Airport

In fiscal 2004, we began a roadside beautification and cleanup drive in the southern area of the airport, taking place each summer and winter. The event has been scaled down due to COVID-19 since the 41st drive held in December 2020. The 41st drive gathered 150 staff from 53 companies while 180 participants from 60 business entities took part in the 42nd drive.

Task Environmental information dissemination

Public Relations Activities through Various Media

We disseminate information on the environmental measures taken at Narita Airport and the results in various media. Our environmental reports are posted on the NAA website, distributed to airport-related business entities and local residents, and sent to libraries and universities throughout the nation. They are also registered on a free distribution site that features corporate publications.

Task Coexistence with local communities

Community Contribution Activities

Many community events, in which NAA has been involved for years, were cancelled or postponed due to the COVID-19 pandemic. Instead, we took part in nursery school cleanups and hydrangea pruning hosted by local municipalities. Interacting with local residents was a precious opportunity for us to recognize the role of Narita Airport as a member of the community.

Nursery school cleanup in Narita City

Pruning hydrangea in Tako Town

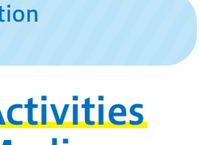
Task Go green with local residents

Selection of 361 Works from 124 Participants

Eco-Photo Gallery, a photo contest on themes such as nature around Narita Airport and aircraft, marked its ninth year. Selected works can be viewed on the Eco-Airport Development and Planning Council's website (Japanese only) and are displayed in passenger terminals and the Soranoyu Spa Resort.

*The Eco-Photo Gallery 2021 Chairman's Prize winning photograph can be found on page 2.

Photographer: HirasannoPEN
Location: Hikoki no Oka



Photographer: Nakamura
Location: Narita Sakura no Yama

A WORD FROM OUR STAFF

Relax and enjoy! Eco-Photo Gallery at the Soranoyu Spa Resort

MANABE Shingo
Marketing and Promotion Group, SAM Corporation

At Soranoyu Spa Resort, we display selected works from the Eco-Photo Gallery on large screens. Admiring the scenery makes me realize what spectacular views exist around the spa. These works are perfect for relaxation, and we will continue to display them.

Greening Projects

According to the Greening Master Plan for Narita Airport and Environs, we develop green areas in consideration of vegetation, aesthetic value, and unique topographical features.

1 *Satoyama* (Countryside Forest) Development

2 Development of Drainage Ways and Waterside Environments

3 Narita *Sakura no Yama* (Cherry Blossom Mountain)

4 Shibayama *Mizube no Sato* (Waterside Park)

5 Asakura *Yasuragi no Mori* (Tranquil Forest)

6 Greenport Eco-Agripark

7 Sanrizuka *Sakura no Oka* (Cherry Blossom Hill)

8 Minami Sanrizuka Nature Trail

9 Toyomi *Shinonome no Oka* (Hill of Dawn)

Natural Parkland Development

Greenport Eco-Agripark is a pristine natural adventure park on a 17-hectare tract of NAA land that adjoins Shibayama *Mizube no Sato* Waterside Park, south of the airport (in the Iwayama district of Shibayama). Opened in 2007, it has a variety of geographical features including low hills and vales (*yatsu*), which are typical of the Hokuso region. The Park is home to many species of insects and has a rich diversity of plants and animals. Our aim is to restore the *satoyama* landscape, and to protect an environment rich in biodiversity.

COLUMN

Natural Environmental Conservation for Our Precious Flora and Fauna

Regarding the environmental impact on functionality enhancement at Narita Airport, we conducted an assessment based on the Environmental Impact Assessment Law. Our Environmental Impact Statement was published with its results and protection measures to remedy the effects included. According to the statement, we launched a series of conservation measures such as precious wildlife relocation, transplanting, and other compensatory measures. The capture and ex-situ conservation of Japanese pond turtles and Japanese fire belly newts has been conducted since the last fiscal year.

Japanese fire belly newt

Eco-Airport Master Plan (FY 2016-2020) and Evaluation Results

For most numerical targets where fiscal 2015 is used as the benchmark, we transitioned toward achievement up until fiscal 2019. However, as aviation demand decreased significantly due to the outbreak of COVID-19, items assessed in individual units such as flights and airport users ended in abnormal figures. Thus, we will use fiscal 2020 figures as reference values.

Community Environment Initiatives

*1 **Quieter aircraft:** Aircraft classified as Class A to C according to the Narita Aircraft Noise Index.
*2 **Low-emission vehicles:** Electric, hybrid, plug-in hybrid, natural gas, fuel cell, clean diesel, and low fuel consumption, low-emission certified vehicles (gasoline, diesel, and LPG [liquefied petroleum gas])
*3 Reference Value

Action Items	Description	Targets (FY 2020)	Results (FY 2020*3)
Reduce environmental impact from aircraft noise	■ Encourage the introduction of quieter aircraft*1 ■ Limit the use of auxiliary power units (APUs) and encourage the use of ground power units (GPUs) ■ Strengthen noise mitigation measures ■ Enhance aircraft noise monitoring and disclosure of results	Reduce environmental impact from aircraft noise	The introduction rate of quieter aircraft was 91.5%, a decrease of 2.2 points from FY 2019  GPU (Ground Power Unit) usage
Conserve air quality	■ Encourage the introduction of low-emission aircraft ■ Implement measures to reduce aircraft taxiing times ■ Limit the use of APUs and encourage the use of GPUs ■ Promote energy saving at airport-related facilities ■ Encourage the introduction of low-emission vehicles*2 ■ Enhance air quality monitoring in the vicinity of the airport and disclosure of results	Reduce air pollutant (NOx) per flight 5% compared to the benchmark year (FY 2015) FY 2015: 16.6 kg/flight	Air pollutant (NOx) output Increased by 17.5% compared to FY 2015 levels (19.5 kg/flight)
Maintain water quality of rainwater runoff	■ Properly use, collect, and process deicing agent ■ Take measures to prevent the release of turbid water, etc. ■ Create retention areas and settling grit chambers in construction areas during construction to prevent the release of turbid water ■ Divide construction zones to limit the occurrence of turbid water ■ Enhance water quality monitoring in rivers, etc., in the vicinity of the airport and disclosure of results	Maintain water quality of rainwater runoff	Some fluctuation, but maintaining water quality of an average year  Deicing effluent treatment facility
Conserve natural environments that nurture biodiversity	■ Ascertain the status of the natural environment and take preservation measures for rare species ■ Preserve agricultural environments ■ Restore the *satoyama* (countryside forest) landscape ■ Preserve the Greenport Eco-Agripark and use it for educational programs, etc.	Conserve natural environments that nurture biodiversity	Suitable management of greening projects in the airport area Greenport Eco-Agripark preservation and use
Implement and reinforce environmental initiatives in collaboration with local communities	■ Use noise control areas tailored to local conditions ■ Encourage environmental conservation initiatives in collaboration with local communities	Implement and reinforce environmental initiatives in collaboration with local communities	Suitable management of land vacated by relocation and leasing of agricultural land

Resource Recycling Initiatives

Action Items	Description	Targets (FY 2020)	Results (FY 2020*3)
Recycle resources	■ Reduce general waste and encourage recycling at airport-related facilities ■ Encourage recycling of industrial waste (packaging material, wooden skids, etc.) ■ Encourage measures to reduce aircraft cabin waste ■ Conduct activities to raise awareness among passengers, employees, and other airport users ■ Recycle concrete and asphalt waste material generated by the airport ■ Take measures for the effective use of grass clippings, cut trees, etc. ■ Encourage green procurement	Recycle resources Reduce general waste incinerated per airport user by 5% compared to the benchmark year (FY 2015) FY 2015: 0.45 kg/airport user	General waste incinerated Increased by 2.2% compared to FY 2015 levels (0.46 kg/airport user)  Sorted recycling bins in terminal
Recycle water resources	■ Implement potable water saving measures based on analysis of water usage conditions by building and by season ■ Encourage the installation of water-saving equipment when facilities are updated ■ Reduce potable water usage by utilizing grey water ■ Conduct activities to raise awareness among passengers, employees, and other airport users	Recycle water resources Reduce potable water usage per airport user by 3% compared to the benchmark year (FY 2015) FY 2015: 30.9 L/airport user	Potable water usage Increased by 104.5% compared to FY 2015 levels (63.2 L/airport user)

Climate Change Initiatives

* COOL BIZ and WARM BIZ: a way of living in comfort while keeping room temperature at 28 ℃ in summer and 20℃ in winter.

Action Items	Description	Targets (FY 2020)	Results (FY 2020[*3])
Reduce CO_2 emissions from the airport	■ Encourage the introduction of low-emission aircraft ■ Implement measures to reduce aircraft taxiing times ■ Limit the use of auxiliary power units (APUs) and encourage the use of ground power units (GPUs) ■ Take measures toward the introduction of next-generation aviation fuels ■ Encourage travel to the airport in low-emission vehicles (install EV charging stations, natural gas and hydrogen stations) ■ Encourage the introduction of low-emission vehicles and eco-driving ■ Generate electricity when incinerating waste through thermal recycling (thermal recovery) ■ Select low-carbon electric power sources when purchasing electric power ■ Encourage the introduction of renewable energy	Reduce airport CO_2 emissions per flight by 7% compared to the benchmark year (FY 2015) FY 2015: 4.30 t/flight	Airport CO_2 emissions Increased by 20.7% compared to FY 2015 levels (5.19 t/flight)  Solar power panels
Reduce energy consumption	■ Increase installation of LED lights on taxiways ■ Encourage energy-saving measures through energy management ■ Conduct energy conservation programs (raise awareness of energy conservation, "COOL BIZ" and "WARM BIZ"*) ■ Encourage installation of energy-saving equipment when constructing new facilities and renovating existing facilities	Reduce energy consumption Reduce energy consumption by NAA-managed airport facilities per flight by 5% compared to the benchmark year (FY 2015) FY 2015: 15.1 GJ/flight	Energy consumption at NAA-managed airport facilities Increased by 80.1% compared to FY 2015 levels (27.2 GJ/flight)
Countermeasures to adapt to climate change in conjunction with global warming	■ Take appropriate preventive measures to address storms and other abnormal natural events	Take countermeasures to adapt to climate change caused by global warming	Formulated the "Narita International Airport BCP (Business Continuity Plan)" to ensure prompt and appropriate measures in the event of a major natural disaster through the collaboration of airport stakeholders

Environment Management

Action Items	Description	Targets (FY 2020)	Results (FY 2020[*3])
Engage in dialogue with stakeholders	■ Promote dialogue with stakeholders ■ Implement environmental conservation programs centered on the Eco-Airport Development and Planning Council ■ Conduct environmental education and awareness activities for airport staff ■ Publicly release environmental information such as noise, air quality, and water quality measurement results and flight routes ■ Give presentations at environment-related conferences on noise, air quality, and other topics ■ Conduct Eco-Kids Club programs, participate in environmental exhibitions, and conduct Touring Environmental Classrooms	Engage in active dialogue with stakeholders	Held interactive dialogue with airport-related business entities through the Eco-Airport Development and Planning Council Conducted activities to raise awareness among passengers, employees, and other airport users through various events organized by the Council Held interactive dialogue with stakeholders through the implementation of community contribution activities despite not being able to hold various events due to the impact from COVID-19
Pursue the creation of value by taking measures with stakeholders to reduce the environmental impact of airport activities throughout society as a whole	■ Encourage activities to reduce environmental impact in collaboration with stakeholders ■ Encourage procurement that takes the environment into consideration	Pursue the creation of value by taking measures with stakeholders to reduce the environmental impact of airport activities throughout society as a whole	Promoted green procurement at the Council
Reduce environmental impact in collaboration with airports in Japan and abroad	■ Encourage information exchanges and joint environmental conservation activities through liaison conferences with other leading airports in Japan ■ Exchange information with and express opinions to the Airports Council International (ACI) ■ Exchange information with and provide technology to overseas airports	Contribute to reducing the environmental impact in cooperation with airports in Japan and abroad	Exchanged information through ACI activities
Environmental conservation through environmental assessments and verification	■ Conduct environmental assessments based on the Environmental Impact Assessment Act toward improvement of airport functionalities ■ Conduct voluntary environmental assessments	Conserve the environment by conducting environmental assessments and inspections	Implemented protection measures based on the Environmental Impact Statement Conducted voluntary environmental assessment monitoring
Conduct environment management using environmental certification programs	■ Encourage environment management using environmental certification programs	Conduct environment management using environmental certification programs	Maintained *Airport Carbon Accreditation* Level 3 and promoted environment management using the program's methods
In the lead up to the 2020 Tokyo Olympic and Paralympic Games, trial and introduce various measures and new technologies, and present our vision of an eco-airport to the world	■ Promote environmental measures to support low-carbon, good air quality, and the 3Rs (Reduce, Reuse, and Recycle) ■ Take measures toward the use of hydrogen energy at Narita Airport ■ Take measures toward the introduction of next-generation aviation fuels ■ Disseminate information on the eco-airport	In the lead up to the 2020 Tokyo Olympic and Paralympic Games, trial and introduce various measures and new technologies, and present our vision of an eco-airport to the world	Used low-emission vehicles such as fuel cell vehicles and electric vehicles as business vehicles for NAA  Electric vehicle

On the cover image

We aim to be an environmentally friendly airport that realizes a sustainable society. Field mustard, the prefectural flower of Chiba, in full bloom represent the rich nature of the location where Narita International Airport is situated and the integration of the airport with the surrounding environment.

Narita International Airport Corporation

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Narita International Airport supports COOL CHOICE, an initiative aiming for a low-carbon society.

This document uses a universal design font that is easy to read.

Published in October 2021

Data are actual figures from fiscal 2020 (April 2020 to March 2021) while activity details are, in principle, current as of September 30, 2021.