Chapter 4 Sustainability

Special Feature Sustainable Charter Flight

The JAL Group aims to create social and economic value by building relationships and connections through air transportation that goes beyond business realms. This is to realize "an society and future where people and goods freely move around" as set forth in our goals.

The JAL 2030 Sustainable Charter Flight (hereinafter the “Flight”), which operated in November 2022, symbolizes this concept Working with various stakeholders, we took a challenge to operate a flight that leads to a sustainable future.

Bring Together Initiatives Related to Sustainability

While transportation is convenient, the environmental impact of flight operations has become a major issue. The JAL Group has declared Net Zero CO2 Emissions by 2050 to realize a sustainable air transportation business.

In addition to transportation, we also aim to create social and economic value by facilitating the flow of people, businesses, and goods, which the relationships and connections, through initiatives to offer more choices, remove constraints, and create goals by collaborating across business realms.

This Flight operated between Tokyo (Haneda) and Okinawa (Naha) in November 2022, is an action that symbolizes our concept in realizing our goals.

With Net Zero CO2 Emissions the top of our list, navigators such as Professor Kanie Norichika of Keio University Graduate School, a leading researcher of SDGs, participated in this event, focusing on the effective use of resources, promotion of diversity equity and inclusion (DEI), improving accessibility, and regional revitalization.

Practicing the Five Pillars for Future Flights

The Airbus A350-900, a state-of-the-art fuel-efficient aircraft was used for this Flight.

Approximately 40 percent of the fuel used was sustainable aviation fuel (SAF), which reduces CO2 emissions by nearly 80 percent compared to conventional jet fuel.

We achieved Net Zero CO2 emission by devising operational improvements such as efficient engine operations, and our customer’s cooperation in JAL carbon offset, which compensated the CO2 emissions during the Flight.

Regarding inflight services and giveaways, we made effective use of resources.

Upcycled items such as luggage tags made from used JAL seat covers, and tumblers made from Okinawa sugarcane pomace distributed as giveaways. Drinks were served in recyclable paper cups using paper lids, focused on the texture and durability. The cups and lids were collected after use.

We served hamburgers made with soybean meat patty, which has a lower environmental impact, as well as other menus that took water consumption and health into consideration.

Many of employees played active roles in this Flight.

Half of the cabin attendants were men, and employees with hearing impairments also served as cabin support staff and presented the outline of inflight talk session with sign language.

Cabin attendants with in-house accessibility certifications and airport staff with Care-Fitter certifications serviced on the day, which promotes DEI and accessibility.

Realizing Japan’s First Net Zero CO2 Emissions Flight

The use of Airbus A350 resulted in a reduction of approximately 10 percent from conventional aircraft.

Net Zero CO2 Emissions were achieved with the use of SAF and JAL Carbon Offset.

With the cooperation of all customers in JAL Carbon Offset, the Flight was able to compensate for CO2 emissions by donating to CO2 absorption projects.

In terms of regional revitalization, we offered tours to experience the charms of Okinawa while taking the environment into consideration.

In addition to preparing hotels with sustainable amenities made from recycled plastics and Okinawa sugarcane pomace, a portion of the tour fee was donated to preserve the natural environment in Okinawa.

As the slogan of this Flight was A Sustainable Future Together, a future Net Zero CO2 Emissions flight was realized not only by the JAL Group but also by co-creating with our customers, business partners, and local communities.

The JAL Group will further accelerate our efforts to make all flights sustainable in order to realize “an society and future where people and goods freely move around.”

For more information about JAL2030 Sustainable Charter Flight, please visit our website.

Environmental

-Enhance corporate value by increasing social and economic value through the promotion of ESG strategies

We will promote our ESG strategies while always being aware of how the JAL Group should be from social perspectives and how we can leverage our capital and strengths to influence the environment and society. We will accelerate a JAL-like sustainability by determining our social role in order to realize a future in which everyone can feel fulfilled and hopeful.

AOKI Noriyuki, Chair of Sustainability Promotion Committee

Key Sustainability Promotion Committee Members

From left in the back row, OMORI Yasuhi, Senior Vice President of Mileage and Lifestyle Business, SAEDA Naohito, Senior Vice President of Human Resources, ABE Eri, Deputy Senior Vice President of Sales and Marketing, NAKAGAWA Yukio, Senior Vice President of Procurement, Front row from left, TOTTORI Mitsuaki, Senior Vice President of Customer Experience Brand Communication, AOKI Noriyuki, Chair of Sustainability Promotion Committee and Senior Vice President of General Affairs, SAITO Yuji, Senior Vice President of Corporate Planning Chief Financial Officer.

Review of FY2022

ESG is now mainstream across the globe and it is changing rapidly with the demands of non-financial disclosures and the evolving of the regulations such as the COP26 baseline. In the Medium-Term Management Plan Rolling Plan 2022, the JAL Group defined its ESG strategy, its long-term business strategy, to solve social issues and facilitate the flow of people, business, and goods, and has focused on transforming its business objectives. While drawing our future image, we are steadily promoting our initiatives after reviewing our main sustainability initiatives and performance indicators to promote business activities based on ESG strategies in business areas other than air transportation. The JAL Group has disclosed information in line with our initiatives which lead to the selection and assessment as a constituent of the ESG evaluation. In addition, the JAL 2030 Sustainable Charter Flight was a symbolic initiative and a good opportunity for our employees to experience sustainable flights with us for our customers to see, learn, and experience sustainability.

Considering the Impact on the Environment and Society

Initially when the Medium-Term Management Plan was announced, the JAL Group focused on its own intentions and reasoning regarding its ESG strategy. However, gradually the JAL Group changed its perspectives to on how the Group should be from a social outlook and what kind of impact we should exert on to the environment and society by leveraging our capital and strengths. We recognize that business and ESG should not be differentiated. As ESG is no longer exclusive, we are more aware of the impact that our business activities have on the environment and society. Thus we must change in order to continue to be the JAL Group that our shareholders call for. The Rolling Plan 2023 positioned the ESG strategy as the topmost strategy to realize value creation and growth. Based on the premise of reducing environmental impact, we aim to resolve social issues such as the decline of community life and the diminishing sense of well-being through the power of air transportation and societal connection, which are being reviewed with the COVID-19 pandemic. Going forward, we will focus on JAL’s unique efforts to collaborate across business realms. We hope to make strides toward initiatives with a sense of purpose that create both social and economic value through our business activities. In order to realize an exciting society and future in which people and goods can freely move around, our employees will work together while considering the impact on the environment and society.

Sustainability Initiatives

We will promote our ESG strategies while always being aware of how the JAL Group should be from social perspectives and how we can leverage our capital and strengths to influence the environment and society. We will accelerate a JAL-like sustainability by determining our social role in order to realize a future in which everyone can feel fulfilled and hopeful.

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(1) Overall Sustainability

Governance

The Sustainability Promotion Committee, chaired by the Senior Vice President of the General Affairs Division, is held on a monthly basis to review the progress of initiatives and discuss them among the relevant officers. The Sustainability Promotion Council, established in 2021 with the President as Chair and attended by all Executive Officers, conducts management reviews and promotes ESG management under the following topics.

- Determine important issues and annual targets for sustainability initiatives, and monitor and evaluate the progress
- Determine risks and opportunities for climate change
- Monitor and evaluate Environmental Management System (EMS)
- Monitor and evaluate human rights due diligence

The Sustainability Promotion Council reports and discusses the agenda of the meeting with the Board of Directors. They will consult the important matters related to ESG promotion with the Board of Directors in order to enhance corporate value.

In FY2022, TCFD, the results and reviews of DJSI, the ESG evaluation outline, materiality reorganization, initiatives based on external environmental changes and social requirements, additional and revised targets, among others, were discussed and reported to the Board of Directors twice in total. Based on the discussions in the Sustainability Promotion Council, ESG and GX strategies were separately discussed at the Board of Directors twice in the process of formulating the Medium-Term Management Plan Rolling Plan.

Strategies

Based on the value creation story, the ESG strategy is positioned as the topmost strategy in the Medium-Term Management Plan Rolling Plan 2023. It promotes company-wide initiatives.

Please see pp.49-50 for more information on ESG strategy, pp.67-74 for the human resources strategy, and pp.75-76 for the GX strategy.

* This chapter mainly refers to TCFD, information based on the recommendations of the TCFD, effective use of limited resources (reduction of single-use plastics and food waste), and efforts to respect human rights based on human rights due diligence.

The eight reorganized materiality issues are as follows. Please see pp.11-12 for details on materiality.

- Climate Change
- Human Resources
- Human Rights
- Safety
- Sustainability Promotion Council
- Sustainability Promotion Committee
- Respect for Human Rights
- Risk Management

<table>
<thead>
<tr>
<th>Eight Key Materiality Issues Addressed by the JAL Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change</td>
</tr>
<tr>
<td>Human Resources</td>
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<tr>
<td>Human Rights</td>
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<tr>
<td>Safety</td>
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<tr>
<td>Sustainability Promotion Council</td>
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<tr>
<td>Sustainability Promotion Committee</td>
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<tr>
<td>Respect for Human Rights</td>
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<tr>
<td>Risk Management</td>
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</tbody>
</table>

Risk Management

The JAL Group defines risk as an event or action that interferes with the achievement of the mission, objectives, and goals of an individual or an organization. Risk surveys and assessments are performed every six months.

The Sustainability Promotion Council deliberates risk management policies and necessary solutions for overall sustainability governance, including the environment. The details are reported to the Board of Directors.
## (2) Key Initiatives (Metrics and Targets)

While covering the 17 SDGs, the JAL Group simultaneously organizes the ESG perspectives and the degree of impact through businesses and the importance for management is discussed at the Board of Directors. In FY2019, the JAL Group established four priority areas, namely the environment, people, local communities, and governance. 22 issues were addressed in each area and medium-term targets were set for each of the four areas and 22 issues. ESG management was promoted to achieve the SDGs.

In FY2021, the four preeminent initiatives (reducing CO2 emissions, reducing single-use plastics, improving the ratio of female managers, and regional revitalization) were set as management targets (Sustainability). In FY2022, new indicators were added and disclosed along with past performances in order to promote our management strategy based on our ESG strategy in business areas other than air transport. On the other hand, as the previous 22 issues in the 4 areas were mainly based on the FSC business, the link to social and economic values were not clear. In FY2023 they were revised into the eight materiality issues.

Our company website provides information on key initiatives and achievements up to FY2022 that were included in last year’s consolidated report. [https://www.jal.com/en/sustainability/initiatives_sdgs/](https://www.jal.com/en/sustainability/initiatives_sdgs/)

<table>
<thead>
<tr>
<th>Action Items</th>
<th>Performance Indicators</th>
<th>FY2019 Results</th>
<th>FY2020 Results</th>
<th>FY2021 Results</th>
<th>FY2022 Results</th>
<th>FY2025 Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase number of passengers</td>
<td>Increase ratio (Passengers)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Maintenance and development of regional route networks including ruling island routes</td>
<td>Increase ratio (Carri.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expansion of services provided through increased contract orders</td>
<td>Number of domestic entry points (including code share)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promoting use of domestic flights in in-bound tours</td>
<td>Number of passengers and cargo flights regarding ground handling for foreign carriers</td>
<td>87 thousand flights</td>
<td>9 thousand flights</td>
<td>17 thousand flights</td>
<td>29 thousand flights</td>
<td>12 thousand flights</td>
</tr>
<tr>
<td>Dynamic logistics and commercialization of eVTOL Air Taxi</td>
<td>Commercialization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promoting air travel to customers who find it difficult to travel</td>
<td>Ratio of such passengers onboard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancing pharmaceutical transportation</td>
<td>Number of waste treatments which go through metal detectors</td>
<td>478 units</td>
<td>478 units</td>
<td>478 units</td>
<td>508 units</td>
<td>580 units</td>
</tr>
<tr>
<td>Promoting Workstyle Research with Outside Stakeholders</td>
<td>Number of member organizations of study groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promoting JAL Wellness &amp; Travel</td>
<td>Number of municipal partnerships</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strengthening planning and sales of recycled products in cooperation with companies outside the JAL Group</td>
<td>Number of affiliated companies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promoting Dokokani Mile</td>
<td>Cumulative number of users</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creating flow of people through the development of subscription type travel programs</td>
<td>Number of users</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Addressing Climate Change

<table>
<thead>
<tr>
<th>Scope 1 (Station) Emissions</th>
<th>9.04 million tons</th>
<th>4.29 million tons</th>
<th>6.7 million tons</th>
<th>8.19 million tons</th>
<th>Less than 9.09 million tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 emissions per paid ton kilometer (RTK)</td>
<td>1.064 kg CO2/ton kilometers</td>
<td>1.275 kg CO2/ton kilometers</td>
<td>1.40 kg CO2/ton kilometers</td>
<td>1.580 kg CO2/ton kilometers</td>
<td>1.818 kg CO2/ton kilometers</td>
</tr>
<tr>
<td>Scope 2 (Ground facility) Emissions</td>
<td>57 thousand tons</td>
<td>51 thousand tons</td>
<td>53 thousand tons</td>
<td>56 thousand tons</td>
<td>Less than 64 thousand tons</td>
</tr>
<tr>
<td>Percentage of fuel efficient aircraft</td>
<td>92%</td>
<td>94%</td>
<td>95%</td>
<td>98%</td>
<td>98%</td>
</tr>
<tr>
<td>Ratio of SAF to total fuel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.04%</td>
</tr>
<tr>
<td>Reduction through JAL Green Operations promotion (CO2 reduction through operational liquefaction)</td>
<td>157 thousand tons (7.7% of emissions)</td>
<td>82 thousand tons (1.8% of emissions)</td>
<td>142 thousand tons (2.3% of emissions)</td>
<td>195 thousand tons (2.4% of emissions)</td>
<td>Reduction equivalent to 2.5% of CO2 emissions from aircraft</td>
</tr>
<tr>
<td>Number of JAL Carbon Offset website visitors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tracked from FY2021</td>
</tr>
<tr>
<td>Number of Carbon Offset website contributors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tracked from FY2022</td>
</tr>
</tbody>
</table>

### Effective Use of Limited Resources

| Reduction of Domestic flights                      | 2.5%              | 10.4%             | 25%              | 45%              | 100%                        |
| Use of environmentally friendly materials in single-use plastics |                  |                  |                  |                  |                             |
| Reduction of inflight meal waste                   |                  | 87%              | 90%              | 91%              | 100%                        |
| Paper reduction                                     |                  |                  |                  | 25%              | 62.5%                       |

Key initiatives based on the 8 materiality issues include actions to create mobility and connections through business activities from the perspectives of increasing options, eliminating constraints, and creating objectives. Global environmental conservation initiatives such as the GX strategy to pass on the precious Earth to the next generation, human capital management aimed at by the human resources strategy, and governance as the foundation for value creation. Metrics and targets are set as follows. It is also possible to set quantitative numerical targets, and we have set items to promote with intention.

Among the disclosed items up to FY2022, prioritized items focused on tracking data trends are reflected in the ESG data.
<table>
<thead>
<tr>
<th>Human Capital Portfolios</th>
<th>Performance indicators</th>
<th>FY2019 Results</th>
<th>FY2020 Results</th>
<th>FY2021 Results</th>
<th>FY2022 Results</th>
<th>FY2025 Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipulator allocation to growing business areas</td>
<td>—</td>
<td>—</td>
<td>+2,200 people</td>
<td>+2,200 people</td>
<td>+3,500 people v.s. FY2019</td>
<td></td>
</tr>
<tr>
<td>Manipulator allocation to growing business areas</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Percentage of women in management</td>
<td>16.4%</td>
<td>19.5%</td>
<td>21.9%</td>
<td>22.8%</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Percentage of men taking childcare leave**</td>
<td>2.62%</td>
<td>2.67%</td>
<td>2.64%</td>
<td>2.75%</td>
<td>3.2%</td>
<td></td>
</tr>
<tr>
<td>Internal relocation through open recruitment</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Percentage of highly engaged employees</td>
<td>54.4%</td>
<td>54.4% (no survey)</td>
<td>51.7%</td>
<td>51.7% (no survey)</td>
<td>64.4%</td>
<td></td>
</tr>
<tr>
<td>Percentage of usage of annual paid leave</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Average number of hours of overtime and holiday work per month**</td>
<td>9.5 hours/person</td>
<td>9.8 hours/person</td>
<td>9.9 hours/person</td>
<td>10.5 hours/person</td>
<td>4 hours/person (linked to 1,800 hours of total annual labor)</td>
<td></td>
</tr>
<tr>
<td>Employee consultation ratio</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>Maintaining 100%</td>
<td></td>
</tr>
<tr>
<td>Employee consultation ratio</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Ratio of mammography**</td>
<td>36.7%</td>
<td>43.4%</td>
<td>64.6%</td>
<td>65.5%</td>
<td>60.5%</td>
<td></td>
</tr>
<tr>
<td>Uterine cancer screening**</td>
<td>36.8%</td>
<td>58.4%</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
</tbody>
</table>

** Total value of Japan Airlines Co., Ltd. and JAL Sunlight Co., Ltd., a subsidiary that hires people with disabilities
** JAL Airlines Co., Ltd. only
*** Number of people in childcare leave applicants before FY2021
**** Number of information leakage incidents reported to authorities
***** Until FY2020, the data was compiled for family members aged 35 and over. From FY2021, the data is compiled for family members aged 40 and over.
Environment

Basic Concept (JAL Group Code of Conduct)

Passing on the precious Earth to the next generation (global environment)

We maintain an awareness that air transport is responsible for a number of negative effects on the environment. To fulfill our responsibility of passing on the precious Earth to the next generation, we raise awareness of every employee and protect the environment in every aspect.

1) Global environmental preservation initiatives

The JAL Group complies with laws and regulations and strives to address climate change, use limited resources effectively, prevent environmental pollution, reduce noise, and conserve biodiversity to reduce impacts on the environment. Furthermore, we pursue the development of environmentally-friendly technologies to solve environmental issues, in coordination with stakeholders.

2) Disclosure of environmental information and stakeholder dialogue

The JAL Group actively discloses environmental information, maintains dialogue with stakeholders and expands environmental preservation initiatives across society.

JAL Group Code of Conduct “Commitment to Society”


Environmental Management

Based on the JAL Group Environmental Policy, the Environmental Management System (EMS) is being constructed to accurately promote environmental conservation activities while making continuous improvements. Targets and action plans are set for each company and division based on management targets, such as reducing CO2 emissions and single-use plastics emissions. Quarterly reviews and annual internal audits are also conducted to confirm compliance, system conformity, and achievement of targets.

If a nonconformity is detected, corrective action, cause analysis, and an effectiveness review of the action are performed. In addition, urgent matters are dealt with within the framework of risk management programs.

In 2021, JAL Royal Catering Co., Ltd., which provides in-flight meals, acquired ISO14001:2015, an international standard that specifies the requirements for an effective environmental management system.

Topic

EMS Internal Audit Functions

In accordance with ISO14001, EMS internal audits confirm the status of the organization, target management, environmental laws and regulations, education and training, communication, document information, and preparedness and response to environmental emergencies. The contents of these audits are reported to the President at the management review.

It also functions as a mutual communication between the environmental division, which serves as an internal auditor, and the division to be audited, leading to continuous improvement.

Addressing Climate Change

In JAL’s view, addressing climate change is a particular issue for the sustainability of the business. In June 2020, we announced our commitment to achieve Net Zero CO2 Emissions by 2050 in order to steadily promote various initiatives including CO2 emissions reduction as an air transport operator’s responsibility. Also, we announced our support for the recommendations from the Task Force on Climate-related Financial Disclosures (TCFD) in February 2021, and for the Science Based Target (SBT) Initiative in March 2022.

In accordance with the Medium-Term Management Plan Rolling Plan announced in May 2023, the JAL Group will work to achieve JAL Vision 2030 and sustainably improve corporate value by positioning ESG strategy as the topmost strategy in order to realize value creation and growth and by achieving medium to long-term growth through the management of risks and opportunities.

The JAL Group has established the JAL Group Environmental Policy based on this concept and a promotion system under this policy. As a corporate citizen, we are working to preserve the environment and remove impediments to our progress.

For more information on the JAL Group Environmental Policy, please visit the JAL website.


Progress towards achieving FY2025 target

FY2025 management target

Total CO2 emissions below 9.09 million tons

FY2022 Result

8.19 million tons

Governance

The JAL Group’s Board of Directors demonstrates a strong supervisory function through the periodic reporting (four times in FY2022) on the execution of initiatives concerning climate change and biodiversity.

In the execution, the Sustainability Promotion Council, chaired by the President, formulates basic policies, sets important targets, and manages progress, and deliberates and decides on policies to deal with issues.

The Sustainability Promotion Committee, chaired by the Senior Vice President of the General Affairs Division, deliberates on individual issues identified through the environmental management system (EMS) and reports to the Sustainability Promotion Council.

The Medium-Term Management Plan incorporates responses to climate change into its management strategy and defines the eight materiality issues for sustainability in general to address social issues through business. With a strong commitment to achieve sustainable business operations and corporate value improvement through steady efforts to address these issues, we reflect external ESG ratings and CO2 reduction targets in executive remuneration as indicators.

- Net Zero Emissions: To balance actual carbon emissions from business activities and carbon reductions through initiatives (including the use of emissions trading and Carbon dioxide Capture and Storage [CCS], the technology for capturing CO2 for long-term storage).

For more information about officer remuneration, please refer to p.36.


## Strategy

### Scenario Analysis

The international community is rapidly moving toward a 1.5°C scenario as the benchmark for climate change action, with tighter environmental laws and regulations in Europe, the return of the United States to the Paris Agreement, Japan’s Carbon Neutral Declaration and major reviews of Nationally Determined Contributions (NDCs), and the decadal 1.5°C target agreement at COP26. In 2018, the JAL Group participated in the Project to Support Analysis of Scenarios of Climate Risks and Opportunities in line with TGCF Recommendations organized by the Ministry of Environment of Japan and predicted the society in 2050 based on two scenarios (RCP8.5*, RCP2.6) of the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC), that is, keeping global warming to below 1.5°C and below 2°C by the end of the century.

1. **1.5°C Scenario** (RCP8.5): High-level reference scenario in the IPCC Fifth Report (equivalent to the maximum greenhouse gas emissions in 2100)
2. **2°C Scenario** (RCP2.6): Scenario Analysis
   - **High-level reference scenario in the IPCC Fifth Report (equivalent to the maximum greenhouse gas emissions in 2100)**
   - **High-level reference scenario in the IPCC Sixth Report (equivalent to the maximum greenhouse gas emissions in 2100)**

### 4°C Scenario

- The 4°C scenario is an extension of the status quo (the structure of the aviation industry remains largely unchanged).

### 2°C Scenario

- In the 2°C scenario, review of supply chains and business models may be necessary due to diffusion of SAF and modal shift.

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**Conditions for Creating Scenarios to Achieve Net Zero CO2 Emissions by the JAL Group**

Based on the 1.5°C scenario, the JAL Group announced that a target was set for Net Zero CO2 Emissions by 2050 at its shareholders’ meeting in June 2020. The below roadmap has been created considering risks and opportunities based on scenarios such as the IEA SIDS scenario.

With regard to the reduction of CO2 emitted by JAL Group aircraft, we are studying CO2 emissions reduction scenarios targeting 2050 and discussing future issues and measures to be taken with reference to the latest study materials of ICAO and IATA based on the 1.5°C pathway and ATAG*2 (WAPPOINT 2050).

In preparation scenarios, we set the growth of Avianca Ten-Kilometers (RTK) based on total international and domestic passenger demand respectively, calculated the total volume of CO2 emissions up to 2050, and reflected the impact in each initiative.

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**JAL Group’s Road Map Towards Net Zero CO2 Emissions**

<table>
<thead>
<tr>
<th>Year/Scenario</th>
<th>CO2 Emissions (1,000 tons)</th>
<th>CO2 Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2021</td>
<td>1,000</td>
<td>0%</td>
</tr>
<tr>
<td>2023</td>
<td>800</td>
<td>20%</td>
</tr>
<tr>
<td>2030</td>
<td>600</td>
<td>50%</td>
</tr>
<tr>
<td>2040</td>
<td>400</td>
<td>70%</td>
</tr>
<tr>
<td>2050</td>
<td>200</td>
<td>90%</td>
</tr>
</tbody>
</table>

**Target of CO2 Reduction**

- **Target of CO2 Emissions**: 0%
- **Upgrades to fuel-efficient aircraft**: 10%
- **Reduction in daily operations**: 30%
- **Use of SAF**: 10%

**Key Initiatives**

- **Use of SAF**: Utilizing the latest aviation technology and introducing SAF into our operations, leading to a reduction in CO2 emissions.
- **Reduction in daily operations**: Promoting collaborations across the entire industry, including air traffic control, airlines, and airports.
- **Collaboration with stakeholders**: Working with stakeholders to achieve net-zero carbon emissions.

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Toward achieving our Net Zero CO2 Emissions by 2050, a new department dedicated to GHG strategy was established in April 2023. JAL will continue to promote GHG strategy through a wide variety of methods, including the use of internal carbon pricing (ICP) and negative emission technologies, in order to promote investment toward decarbonization, and the continued active efforts to use SAF, which is recognized as a particular focus.

In March 2023, we issued the world’s first transition bond in the aviation industry to steadily upgrade our fleet to the most advanced equipment with high fuel efficiency (such as the A350 and 787), and it was selected as the first model example in Japan’s Aviation Industry for 2021 Climate Transition Finance Model Projects by Ministry of Economy, Trade and Industry of Japan.

In March 2023, JAL became Japan’s first airline to issue Transition-Linked Loans with specific use of proceeds, and the loan was selected as a target of the Ministry of Economy, Trade and Industry’s FY2022 Global Warming Countermeasures Promotion Program Subsidy. In addition, JAL issued its second transition bond in June 2023, and is actively and continuously utilizing ESG finance. We are engaging in dialogues with investors to gain an understanding of our company’s initiatives.

In October 2022, the International Civil Aviation Organization (ICAO) reviewed its long-term CO2 reduction targets for 2050, and the CORSIA (carbon offset and reduction initiative) was revised. In line with this, it is expected that CO2 emission reductions by airlines will be promoted, and countries will strengthen CO2 emission regulations and be active in CO2 emission trading. JAL recognizes that it is necessary to accelerate its response to climate change.

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* Sustainable Aviation Fuel (SAF): CO2 emissions can be reduced by an average of 80 percent compared to conventional jet fuel in the life cycle from production and procurement of feedstocks, to manufacturing, transportation and combustion.

* CORSIA: Carbon Offsetting and Reduction Scheme for International Aviation. A system that requires international flights to purchase emission credits for exceeding the 2019 CO2 emissions standards (baseline).
### Risks and Opportunities

Climate change will have a negative impact on the air transport business, which is based on the premise of operating in a “safe and secure society,” and as a result, it may pose an enormous risk to business continuity. In addition, the response to climate change, including the reduction of CO2 emissions by airlines, may bring various financial impacts, such as upgrading to fuel-efficient aircraft and responding to carbon pricing. The JAL Group organizes and examines these factors and conducts business in accordance with the TCFD classification of risks and opportunities related to climate change and lists them in the table below. The categories of “short” and “long” at the impact of event are as specified right. The following was reviewed at the Board of Directors meeting on August 1st, 2023.

### Risk Management

#### Risks related to climate change, both transition risks and physical risks, are managed in the risk management system of the entire JAL Group.

Risk Management

The JAL Group defines risk as any event or action that may impede the achievement of the organization’s mission, objectives, or goals, and conducts systematic risk surveys and assessments. Those assessed as of particular importance are positioned as priority risks, and the status of risk management is reviewed at the Group Risk Management Council chaired by the President, where countermeasures are discussed and decided. With regards to environmental issues such as climate change and biodiversity, which are priority issues in our management strategy, we implement risk management through the Environment Management System (EMS), while considering relevant laws, regulations, and policy trends in the international community.

#### Risk Management System

For a more detailed risk management structure, please visit the JAL website.

### Metrics and Targets

In order to pass on our precious Earth to the next generation, the JAL Group sets targets for environmental data such as CO2 emissions, waste and water consumption, and discloses the results.

For more information on Metrics and Targets, please visit ESG Data Book.


Due to the nature of the air transport business, direct emissions from aircraft account for about 99 percent of CO2 emissions. Based on this fact, we will first address the reduction of CO2 emissions from aircraft as our top priority, but we are also earnestly working to reduce CO2 emissions from indirect emissions from ground facilities with similarly high targets. Achieving our goals by is by no means easy, but we will continue to lead the industry in cutting-edge initiatives in line with the Japanese government’s Clean Energy Strategy, while strengthening cooperation and collaboration with various stakeholders in Japan and abroad, in line with the international framework for reducing CO2 emissions.

For more information on Performance and Targets for Reducing CO2 Emissions, please visit the JAL website.


#### Targets and Initiatives for CO2 Reduction by 2030

The JAL Group has set specific targets for 2030 (a 10 percent reduction in total emissions from 2019 levels) in May 2021 as the first Japanese airline and has taken the lead in promoting decarbonisation of the global aviation industry through joint procurement of SAF in alliances and the use of ESG finance when renewing aircraft. Going forward, JAL will continue to accelerate our existing initiatives, such as the steady renewal of fuel-efficient aircraft based on a stable financial base, steady implementation of JAL Green Operations, and strategic procurement based on specific SAF loading targets, and by implementing the utilization of emissions trading and consideration of the use of new emission technologies as additional responses to the revised CORSIA baseline. We will boldly take on the challenge of achieving our targets. Regarding SAF, while overseas manufacturing and shipbuilding construction activities are accelerating, it was clearly stated that SAF manufacturing and distribution will be promoted in Japan in the Basic Policy for Economic and Fiscal Management and Reform 2023, SmartDesign and the Implementation Plan for New Capitalism, Clean Energy Strategy, and Basic Policy for Realising GI in order to realize its ambitious goal of replacing 10 percent of all installed fuel with SAF by 2030, the JAL Group will actively work toward commercializing SAF through public-private partnerships and cooperation with domestic and international stakeholders.

### ECO. Reduction Targets and Achievements

<table>
<thead>
<tr>
<th>Year</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>9.09 million</td>
<td>8.19 million</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td>9.09 million</td>
<td>8.19 million</td>
<td></td>
</tr>
<tr>
<td>2030</td>
<td>9.09 million</td>
<td>8.19 million</td>
<td></td>
</tr>
</tbody>
</table>

- Direct Emissions (Scope 1) (FY2013: 9.09 million)
- Indirect Emissions (Scope 2) (FY2013: 8.19 million)
- *Actual results less than 2020 targets* (40%, 40%, 40%)

*Virtually digging deeper, taking into account the Paris Agreement, etc.*
Actions to be Taken by FY2030 Responding to Changes in the Business Environment

At the 41st ICAO General Assembly held at ICAO Headquarters (Montréal, Canada) from September 27 to October 7, 2022, the ICAO announced the long-term goals for decarbonization in the international aviation sector and adopted to achieve Net Zero CO2 Emissions by 2050, as well as a framework (the calculation standards for reductions to be imposed on each airline) for reducing CO2 emissions. This is a major change in the framework, which revises the baseline for calculating the excess CO2 emissions of the international aviation sector to 85% of the 2019 level for the period 2024 to 2035. The JAL Group will respond to these changes in the business environment by making efforts to reduce CO2 emissions.

Roadmap for Reducing CO2 Emissions up till FY2030

CORSIA will be addressed separately, with no change in JAL's reduction targets.

Use of SAF

The JAL Group has set a goal of “Replacing 1 percent of all fuel on board (FOB) with SAF in FY2025 and 10 percent in FY2030.” In order to achieve our goals, we are promoting the procurement of SAF in Japan and overseas as well as working with stakeholders across industries in Japan to produce and commercialize domestic SAF. We are also promoting the spread and expansion of SAF through participation in the development of “future generation SAF” such as synthetic fuels.

What is Sustainable Aviation Fuel (SAF)?

The term “sustainable aviation fuel” refers to aviation fuel that uses feedstocks that are not derived from petroleum. These products are made from feedstock that have absorbed CO2, such as used cooking oil and forest residues. By utilizing the feedstock, new CO2 emissions can be reduced.

Use of SAF

CORSIA will be addressed separately, with no change in JAL’s reduction targets.

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Procurement of SAF Overseas

In FY2021, we signed a joint agreement with one world alliance member airlines to purchase SAF from the United States, where SAF is already produced. SAF will be purchased from Aemetis Inc., which produces SAF from tallow, and ICAO, which produces SAF from non edible oil. This is the first initiative of this alliance, and by showing the need for SAF by multiple airlines, we will contribute to the diffusion and market expansion of SAF and promote carbon neutrality in the aviation industry.

In FY2022, we worked with SAF producers and suppliers to establish a system to supply SAF in Singapore, Los Angeles, and Chubu Centrair International Airport. We also signed a memorandum of understanding to procure SAF from Raven SR in the United States, which uses municipal solid waste as feedstock.

Accelerating Efforts to Produce and Stably Secure SAF in Japan

Collaboration in the aviation industry

To achieve carbon neutrality in 2050, the development and diffusion of SAF is essential. In October 2021, JAL and All Nippon Airways Co., Ltd. (ANA) published a joint report “Toward Virtually Zero CO2 Emissions from Air Transport in 2050” to build a stable supply system for SAF. The report aims to raise awareness and promote understanding of SAF in Japan and provides a wide range of information on mass production and utilization including estimates of SAF requirements in Japan. To pass on air transportation to the next generation as an important social infrastructure that connects Japan with the world, JAL and ANA will continue to work together to promote SAF diffusion and other environmental measures, in collaboration with the government and related parties.

Cross-industry collaboration

In March 2022, JAL, together with JGC HOLDINGS CORPORATION, ANA and REVO International Inc., launched ACT FOR SKY, a voluntary organization with the aim of promoting SAF, carbon neutrality, and the importance of resource recycling, while changing the attitudes of citizens and companies, which will hopefully lead to behavioral changes. We started with 16 companies, and as of April 2023, we have expanded to 27 companies. ACT FOR SKY promotes and expands domestic SAF through information exchange and discussion among its members, as well as activities to raise awareness of society by disseminating information and holding events aimed at realizing a decarbonized and recycling-based society.

SAF Initiatives at JAL

We also signed a memorandum of understanding to procure SAF from Raven SR in the United States, which uses municipal solid waste as feedstock.

Joint report was published with ANA
■Upgrading to Fuel-Efficient Aircraft

In September 2019, we began introducing Airbus A350-900 on domestic routes and currently have 16 aircraft. From 2023, we will begin to introduce an additional Airbus A350-1000 on international routes, and will introduce the new Boeing 737-8 in 2026 as a replacement for the currently operating Boeing 737-800. These aircraft are fuel efficient, have low noise, and can reduce CO₂ emissions by 15 percent to 25 percent compared to previous models. The newly introduced aircraft will use funds raised through a public offering in FY2020. It will also be funded by the SDGs Bonds, the world’s first transition bond issued by the airline industry in March 2022, and will be utilized to steadily upgrade to fuel-efficient aircraft.

As the development of next-generation aircraft equipped with new technologies powered by electricity and hydrogen increases, we will cooperate with aircraft and engine manufacturers to implement carbon-neutral technologies. Since the development of infrastructure, including airports, is also essential for the next generation of aircraft, we will work with stakeholders such as the national government and airport companies to improve the environment.

■Reducing CO₂ Emissions in Daily Operations

In order to reduce CO₂ emissions, various efforts are taken in our daily operations, such as eco-friendly flights by arranging the timing of operations and steering, reducing the weight of the aircraft and shortening the flight route. These efforts are collectively called “JAL Green Operations”.

For example, we monitor the actual flight routes on a daily basis, and even at the flight planning stage, we create a flight route plan that matches the actual situation, and so on, in order to optimize the loaded fuel on board (FOB).

In addition, the implantation rate of the early acceleration asfalt method, which has been actively promoted for some time, has increased significantly because the speed limit stipulated in the Civil Aviation Act was changed after discussions with the Civil Aviation Bureau, making it easier to implement.

■JAL Green Operations

Preparing for Departure
1. Optimal Flight Plans
2. Reducing APR Stage
3. Reduction of Onboard Weight

While Parked in Spot
4. Engine Washing
5. Improvement of Wing Tips and Fairing, as well as Ribs
6. Engine Upgrades and Replacement

At Takeoff
7. Optimum Speed
8. Accurate with Early Acceleration
9. Adjusting Flight Speed
10. Continuous Descend Operations
11. Idle Reverser
12. Delayed Flap & Gear

In Flight
13. 2900 ft
14. 1500 ft

During Descent
15. 2000 ft
16. 500 ft

At Landing
17. 100 ft
18. 50 ft
19. 20 ft

Total

63,900 households* CO₂ emissions from electricity use in one month
*Equivalent to 14,100 tons of CO₂ emissions

In FY2022, the reduction result was 2.4% compared to the FY2020's target of 2.5% of total emissions.

Other measures and data related to “improvements in daily operations” are also posted on our company website.

Voice

A Fuel Efficiency Flight Test was conducted for the First Time in the World by Applying Riblets on Aircraft Coating Surfaces.

In FY2022, JAL conducted a flight test involving the use of riblet technology. Riblets are microstructures that reduce friction when applied to the aircraft coating surface. The riblets improve fuel efficiency by roughly 2 percent.

During the test, we were able to achieve the optimal flight methods such as aircraft positioning, deicing, and reducing flaps and gear. However, the riblets also reduced the friction in the airframe, a factor that cannot be measured in the test environment.

Through the test and flight, we were able to confirm the riblets’ performance and achieve improvements in fuel efficiency. The results will be used to optimize the flight paths and reduce CO₂ emissions in the future.

In the future, we plan to expand the riblets to the aircraft coating surface to further reduce CO₂ emissions and improve fuel efficiency.

■Measures to Reduce CO₂ Emissions from Ground Equipment

With regard to ground equipment, initiatives to reduce unit energy consumption by one percent or more on average are in progress. Under the “operator classification evaluation system” of the Act on the Rational Use of Energy (Energy Conservation Act) implemented by the Ministry of Economy, Trade and Industry, the JAL Group has been certified as “S Class,” an excellent business operator, for eight consecutive years since 2015.

To reduce CO₂ emissions from airport vehicles, Tokyo International Airport (Haneda) is introducing electric-powered vehicles.

At Narita International Airport, used cooking oil, in the Dining Port Goryo Kaku restaurant operated by the JAL Group, was collected and processed into biodiesel fuel. This fuel, a local production and consumption project, is then used in ground support equipment at Narita International Airport.

Providing Carbon Offset Programs

In addition to responding to ICAO CORSIA which is an international emissions reduction and offset scheme, we offer “JAL Carbon Offset” to our customers.

JAL Carbon Offset

In cooperation with OHDOOBE, a Norwegian company, we offer JAL Carbon Offset. This program for individual and corporation customers enables to offset the CO₂ emissions from their flights.

At the Sustainable Charter Flight held in November 2022, we worked to achieve Net Zero CO₂ emissions using the individual program by supporting projects that absorb CO₂.

In addition, the corporate program allows companies to provide reports on CO₂ emissions visualization, select credit programs, implement carbon offsets, and issue certificates.

We will continue to work with our customers to reduce CO₂ emissions.

Voice

CONTRAIL Project

In order to accurately predict climate change, it is essential to observe the CO₂ concentration and understand its circulation at multiple locations, including the sky. The JAL Group has been using aircraft to conduct atmospheric observations since 1993, and in 2005, a public-private CONTRAIL project was launched by five organizations (National Institute of Environmental Studies, Meteorological Research Institute, Jamco Corporation, JAL Foundation, Japan Airlines) to expand the observations.

This project, for the first time in the world, continues global observations of greenhouse gases (such as CO₂) in scheduled flight, involves the sky. The data is being used by researchers around the world.

Top Topic

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Biodiversity Risks

The JAL Group identified priority areas by focusing not only on water, but also on biodiversity itself, including ecosystems such as forests and coasts, and the various species that inhabit them.

JAL Group’s destinations were matched with areas of significant biodiversity in WWF’s Biodiversity Risk Filter, and it was found that many areas in Japan are at high biodiversity risk. Hokkaido, Kagoshima (Amami), and Okinawa, which have high demand for nature tourism, were identified as areas where our businesses are dependent on nature. Also, Tokyo was identified as an area with high priority for biodiversity conservation, where operations have an impact on nature because it is a major airport.

Risks and Opportunities on the Organization’s Businesses

The loss of biodiversity can be a significant risk to the continuance of our air transportation business, and managing it can also lead to opportunities. The workshop also assessed nature-related risks and opportunities based on the identified dependencies and impacts, which are summarized in the table below. In the future, we will deepen the assessment of risks and opportunities by analysing financial impacts as well.

Risk and Impact Management

The JAL Group defines risks as any event or action that may impede the achievement of the organization’s mission, objectives, or goals, and conducts annual risk surveys and assessments. Those assessed as of particular importance are positioned as priority risks, and the status of risk management is reviewed at the Group Risk Management Council chaired by the President, where countermefasures are discussed and decided.

With regards to environmental issues such as climate change and biodiversity, which are priority risks in our management strategy, we implement risk management through the PDCA cycle based on the EMS, while considering relevant laws, regulations, and policy trends in the international community.

Risk Management System


Metrics and Targets

The JAL Group recognizes that biodiversity is affected by various environmental issues, including climate change, resources, and environmental pollution, and commits to comprehensie solutions. In addition to targets related to biodiversity conservation, we disclose environmental data such as CO2 emissions, waste and water consumption.

For targets and KPIs, visit our company Web site.


Focused and Strategic Measures

Sexual Reproduction and Coral Repagation Project

One of the attractions of Okinawa are coral reefs. Coral reefs are not only beautiful but also have many roles, such as being a place where living organisms coexist and live. However, in recent years, the number of corals has been decreasing due to rising sea temperatures and the occurrence of large numbers of hazardous crown-of-thorns starfish. Japan Transocean Air (JTA) has formed a council with local companies, which has high demand for nature tourism, to improve the sustainable management of coral reefs in Okinawa, with Okinawa and Kume Islands using a new method called the Sexual Reproduction Method.
Prevention of Illegal Wildlife Trade

In June 2018, the JAL Group signed the Buckingham Palace Declaration, promoted by the International Air Transport Association (IATA), to promote the prevention of illegal wildlife trade. In the Amami-Oshima region, where many rare wildlife live, we are working with the Ministry of the Environment and local governments to participate in training sessions to prevent poaching and smuggling, to test the use of applications to identify rare wildlife, and to establish a cooperative system in cases where it is difficult to identify species.

Considering Biodiversity in Foodstuffs and Commercial Products

In July 2022, the JAL Group established in-house guidelines for foodstuffs and commercial materials to be handled to consider biodiversity from the viewpoint of protecting endangered animals. We are promoting the guidelines within the company to properly understand the importance of biodiversity conservation and to recognize the relationship between foodstuffs and commercial products.

Mangrove Planting Activities

On November 29, 2022, JAL-KM marked Indonesia’s tree planting day by planting mangroves in the PIK Mangroves Ecotourism Area as part of their SDGs initiative. The purpose of planting mangroves is to restore and maintain the quality, functions, and benefits of the mangrove forests. This initiative is a concrete action taken by JAL to conserve local environmental biodiversity. In total, 250 mangroves were planted. For preparation of the activity including types such as plastic gloves, rubber boots, hats, and personal hygiene tools. The event was attended by almost all staff in the branch as well as the Asia and Oceania region. The founder of mangrove Jakarta, Mr. Pusandra Hananta, expressed gratitude for Japan Airlines’ concern for the environment and hopes that this initiative can be continued in other places. The participants enjoyed this activity and it became a memorable moment for them.

Voice

Rudy Tienardi Banuak, General Affairs Section, Jakarta Branch, Senior Vice President Office, Asia & Oceania

Precaution of Environmental Pollution

Particularly relevant areas: Passengers Cargo and Mail

Basic Concept

The JAL Group will strive to prevent environmental pollution and fulfill its responsibility to pass on the precious Earth to the next generation. We will strive to reduce carbon emissions from aircraft and factories, which cause environmental pollution. To achieve this, we will reduce emissions of nitrogen oxides (NOx), carbon monoxide (CO) and hydraulic fluids (HC) by using aircraft engines that comply with appropriate standards. We will also manage and reduce the release of hazardous chemical substances in accordance with the regulations. To align with Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR Law), we will maintain a final disposal rate for industrial waste of 1 percent or lower.

Noise Reduction

Particularly relevant areas: Passengers Cargo and Mail

Basic Concept

The JAL Group is aware that air transport is responsible for a number of negative effects on the environment and aims to live in harmony with residents around the airport. To reduce noise, we are upgrading our fleet to the latest low-noise aircraft that comply with noise standards. We are also actively introducing noise abatement operational procedures.

Effective Use of Limited Resources

Particularly relevant areas: Passengers Cargo and Mail

Basic Concept

To fulfill our responsibility to pass on the precious Earth to the next generation, the JAL Group aims to become a recycling-oriented society that uses limited resources effectively. To promote the effective use of limited resources, we will practice the 4Rs (Reduce, Reuse, Recycle) to reduce food waste and eliminate petroleum-derived single-use plastics products in all aspects of our business, which will contribute to reducing greenhouse gas emissions. To this end, we will work with our customers to reduce food waste and the use of plastic products at every touchpoint, including our cabinets. In addition, we will work with our suppliers to promote initiatives such as supply chain reduction.

For more on “Reducing Food Waste,” see “Sustainability of Restaurants in the Sky” on pp.103-104.

Single-use Plastics Reduction

Progress towards achieving FY2025 targets

<table>
<thead>
<tr>
<th>Important issue</th>
<th>FY2025 management targets</th>
<th>FY2022 Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of plastic waste</td>
<td>Cabins and Lounges: Elimination of all new petroleum-based plastics</td>
<td>Discarded: 45% Replaced: 91%</td>
</tr>
</tbody>
</table>

Focused and Strategic Measures

In May 2021, the JAL Group formulated a target for FY2025 to solve the problem of reducing single-use plastics, a contributing factor to global warming and ocean pollution. Through the promotion of 3R (Reduce/Reuse/Recycle) + 1R (Redesign) and with the cooperation of our customers, we are attempting to eliminate all new petroleum-based products in all single-use plastic products provided to our customers at cabins and lounges, and to replace the items thoroughly to environmentally friendly materials in airports and cargo.

Examples of Single-use Plastics Reduction

Image of Reduction of Single-use Plastics Consumption Toward FY2025 Targets

- Plastic bottles
- Plastic straws
- Plastic bag for delivery service
- Plastic plates for flight meals
- Plastic bags for ‘green’ cargo

Recycling of Inflight Paper Cups

The JAL Group has been recycling paper cups (dishes, cups, and lids) on some domestic routes since December 2022 in cooperation with Nippon Paper Industries Co., Ltd. In the past, used beverage paper products were incinerated as general waste from a technical and sanitary standpoint. However, the JAL Group has made it possible to recycle used paper cups by creating a unique recycling chain whereby paper cups used for inflight services are properly sorted and collected by the JAL Group, and then transported, accumulated, and recycled by the Nippon Paper Group using advanced technology. Customer cooperation is essential for sorting the items. We will continue to work with stakeholders to accelerate the promotion of resource recycling.

Voice

KAMEDA Hirofumi
Head of New Business Development Team, Japan Airlines Co., Ltd.
Engineering and Maintenance Division Business Promotion Division

Recycling of Domestic Boeing 777 Aircraft Achieved a Recycling Rate of 96 Percent

We have been selling Boeing 777 aircraft, which operated domestic flights until the end of FY2021, to overseas markets. We have also taken the first initiatives in Japan to recycle some of the materials used in the aircraft. In addition to recycling metals such as aluminium and iron, we also recycled plastics and carbon fiber composite materials (CFP) as materials resulting in a 96 percent recycling rate. We are also working on manufacturing and selling upcycled products to familiarize air travel by utilizing discarded parts. We will continue to take on new initiatives to realize a more sustainable society.
Special Feature

Sustainability of Restaurants in the Sky

We must keep our focus on the various challenges of food that support life. Greenhouse gas emission accompanied by food is 21 percent to 37 percent of all emissions, but one third of the food is discarded. There are a variety of issues surrounding food, including overfishing and the impact of pesticides on biodiversity, worker’s rights, and nutritional bias. Our efforts will continue to provide customers with safe, sustainable, and delicious meals that are friendly to ecosystems and labor, and to recycle them into resources without waste.

Implement a Food Waste Reduction Program that Includes the Supply Chain

**Post-Harvest Loss**
- Utilization of disposable crops
- Reuse of non-standard crops

**Processing Loss**
- Composting all food loss including supply chain
- Recycling-oriented vegetable

**Purchasing/Storage Loss**
- Reservation analysis
- Stock/buying control

**Cooking Loss**
- Composting all food loss
- Prevention of excessive removal of edible parts and reuse of edge materials
- Loss analysis by category

**Food Waste**
- Campaigns to prevent leftover food
- JAL Meal Skip Option
- Donations to welfare councils

Voice

**KONO Fumiko**
Cooking Producer, On-the-go Chef, Supervisor of JAL inflight meals

Delicious and Sustainable Meals
When planning tasty and sustainable inflight meals, our first consideration is the needs of our customers. While we value communication with our cooks, including exchanging opinions with our crew, we aim to prepare inflight meals that customers would want to talk about.
Framework for Respecting Human Rights

The JAL Group promotes efforts to respect human rights based on its human rights policy and internal rules governing the mechanism and operation of human rights due diligence (hereinafter “Human Rights DD”).

The JAL Group employees are educated on gender equality, LGBTQ issues and the prevention of human trafficking. We also take steps with regard to our supply chain (refer to Responsible Procurement).

1. Confirmation of Human Rights policy
   a. We annually confirm that there are no issues with the policy contents. After confirming the contents, there were no changes to the policy in FY2023.

2. Human rights risk assessment
   b. We conduct human rights risk surveys for all divisions within the JAL Group and all Group companies. We conducted a smaller human rights risk survey in FY2023.

3. Human rights risks evaluation/interaction of issues
   c. Among the risks that have emerged from the human rights risk survey, we identified human rights issues that need to be addressed with particular emphasis. In FY2023, we identified “prevention of human rights violations by external communications” as a new issue, which was one of the most common risks.

4. Human rights risk survey and evaluation
   d. We conduct human rights risk surveys for all divisions within the JAL Group and all Group companies. We conducted a similar human rights risk survey in FY2023.

5. Dialogue with experts/evaluation of important issues and improvement plan for the current fiscal year
   e. We held dialogues with outside experts and formulated proposals for priority issues and improvement plans for the current fiscal year based on the contents of the “3. Human rights risk evaluation/interaction of issues” and “4. Review of the implementation status of the previous year’s improvement plan.”

6. Management review
   f. We report the contents of the previous year’s review, the priority issues proposed for the current year, and the improvement plan to the President. In FY2023, we reported that we will regard these issues in our management review.

7. Reflection on the previous year’s review
   g. Based on the results of the management review, improvements are reflected in the improvement plan for the current fiscal year as necessary.

8. Confirmation of priority issues and improvement plan for the current fiscal year
   h. Based on the above points two to seven, we have established priority issues and improvement plans for the current fiscal year.

9. Improvement of priority issues and improvement plan for the current fiscal year
   i. In accordance with the established priority issues and improvement plans, we will proceed with initiatives in this fiscal year’s financial details on the next page.

10. Report internally and externally
    j. We report the results of our efforts in the previous fiscal year, priority issues for the current fiscal year, and improvement plans internally and externally through integrated reports and websites.

JAL Group’s Efforts to Respect Human Rights

Through its business activities, the JAL Group aims to realize a society in which all human rights are respected, and people can play an active role with peace of mind. To this end, we strive to respect the human rights of all stakeholders, including suppliers, customers, and employees, in accordance with the JAL Group Human Rights Policy. Our basic approach to each stakeholder is as follows.

1. Suppliers
   a. We will work together with our business partners to build a sustainable supply chain that includes respect for human rights and appropriate labor practices. We also conduct risk assessments and monitoring to confirm the soundness of our supply chain. In addition, we will continue to procure products and meals that take human rights into consideration, such as service supplies and meals provided on flights and in lounges.

2. Customers
   b. We will work to make all customers feel comfortable and secure. We will focus on three areas: improving accessibility, which aims at stress-free travel and provides a variety of travel options; the prevention of human trafficking, which aims to prevent complicity in human trafficking through air transportation; and the prevention of human rights violations through external communications so as not to cause unintentional human rights violations through external dissemination.

3. Employees
   c. In addition to improving the working environment by preventing harassment, reducing long working hours, and preventing personal information leakage, we will promote initiatives to respect diversity by promoting DEI as women’s advancement in the workplace and the active participation of people with disabilities.

List of Initiatives to Respect Human Rights

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Challenges</th>
<th>Scheduled to be implemented in FY2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers</td>
<td>Confirmation of respect for human rights in the supply chain</td>
<td>Continued</td>
</tr>
<tr>
<td></td>
<td>Procurement of products with consideration for human rights</td>
<td>Continued</td>
</tr>
<tr>
<td>Customers</td>
<td>Initiatives towards safety and comfort (Prevent the spread of infectious diseases)</td>
<td>Replanning</td>
</tr>
<tr>
<td></td>
<td>Prevention of human trafficking</td>
<td>Continued</td>
</tr>
<tr>
<td></td>
<td>Prevention of human rights violations by external dissemination</td>
<td>New implementation</td>
</tr>
<tr>
<td>Employees</td>
<td>Prevention of harassment</td>
<td>Continued</td>
</tr>
<tr>
<td></td>
<td>Prevention of long working hours</td>
<td>Continued</td>
</tr>
<tr>
<td></td>
<td>Fair and impartial hiring and promotion</td>
<td>Continued</td>
</tr>
<tr>
<td></td>
<td>Prevention of discrimination against race and culture</td>
<td>Continued</td>
</tr>
<tr>
<td></td>
<td>Prevention of personal information leakage</td>
<td>Continued</td>
</tr>
</tbody>
</table>

Please refer to the special issue “Eleven priority issues, indicators and targets related to respect for human rights” on pages 107-108 for specific initiatives.
Special Feature

Eleven Priority Issues, Indicators and Targets Related to Respect for Human Rights

1. Confirmation of Respect for Human Rights in the Supply Chain
   We strive to establish a sustainable supply chain that includes respect for human rights, compliance with laws and regulations, global environmental protection, and proper labor practices. In FY2022, we distributed and collected self-assessment questionnaires to all 411 main suppliers, to identify risks, explain the results to suppliers who were able to identify risks, requested corrective measures, and completed soundness checks. We have also started the operation of a hotline for domestic and overseas suppliers. In FY2023, based on the advice we received in dialogue with experts, we will identify suppliers that are closely tied to our company and highly important from an ESG perspective, and will conduct on-site audits.

2. Procurement of Products with Consideration for Human Rights
   As for the service supplies and meals provided to our customers at the cabin and lounge, we adopt certified products that take into consideration the worker’s rights involved in forestry, agriculture, and fishing. We strive not to be complacent in human rights violations such as poor working conditions, child labor, and land rights violations of indigenous peoples. In FY2022, 87.6 percent of paper products were replaced with certified products, and ten kinds of certified fishery and agricultural products were used. In FY2023, we aim to increase the usage rate of certified paper products to 95 percent.

3. Improving Accessibility
   In accordance with the JAL Group Accessibility Service Policy, we are working to create fun and entertaining travel by providing stress-free travel options to all customers. We promoted initiatives based on four pillars (employee education, environmental improvement, information dissemination, and accessible tourism), including training and lectures to enhance empathy through interaction with para-athletes, pre-flight workshops to relieve various concerns about flying, and tours for customers with developmental disabilities. In FY2023, we will continue to strive to improve accessibility based on the four pillars.

4. Prevention of Infectious Disease Expansion
   We are working to ensure that all customers can enjoy a safe and secure air travel. In FY2022, we promoted initiatives based on three pillars (improve hygiene and cleanliness, use digital technology to make touchless automatic and self-service, and support travel), including employee education on hygiene and infectious diseases and the implementation of “hospitality service utilizing facial recognition tech” at Narita Airport. We continue to provide airport and inflight services that allow customers to travel with a peace of mind. In the light of the gradual shift to the post-coronavirus era, we will change the position of these issues from priority issues in FY2023.

5. Prevention of Human Trafficking
   The JAL Group regards entourages involving human trafficking as air transport as a particularly important human rights issue. In FY2022, continuing from the previous year, all employees were provided with education on the respect for human rights, including information on the prevention of human trafficking. In addition, as part of our efforts with external stakeholders, we invited officers from the National Police Agency to tell us about the current situation in human trafficking in Japan. We held panel discussions with staff from airlines and cabins in the company. In FY2023, we will continue to educate all employees on the prevention of human trafficking, expand the scope of our external stakeholders, and take on prevention measures.

6. Prevention of Human Rights Violations by External Discrimination
   Amid the increasing complexity of the environment surrounding the JAL Group, we will establish a checking system to ensure that there are no human rights violations committed unintentionally through external discrimination. This issue was newly added in FY2023. In FY2023, we will strengthen the checking system so that the main department can make more effective confirmation. To raise awareness among employees, we will also incorporate this content into training programs related to the respect for human rights and work to prevent violations of human rights caused by external discrimination.
Build better relationships with stakeholders

**Efforts by Corporate Citizenship Activities**

As a good corporate citizen, the JAL Group aims to build better relationships with its stakeholders and contribute to the development of society. As part of our corporate citizenship activities, we will use our know-how as an airline company to create opportunities to think about the future of the environment and society, foster the next generation, support culture and sports, and work with various stakeholders. We support volunteer activities by our employees.

**Topic 1** JAL SORAIKU

JAL SORAIKU® aims to provide students with the opportunity to think about their future and the future of the global environment by exploring the wonders of the sky and the joy of flying. We have held online classes, SORAI-EKO Classes, origami plane classes, and virtual JAL Factory tours as activities that can be done during COVID-19. In addition, we have also resumed face-to-face activities. We encourage people to think about the future through online programs and face-to-face interactions.

**Number of JAL SORAIKU® participants (past 4 years)**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2019</td>
<td>19,130</td>
</tr>
<tr>
<td>FY2020</td>
<td>23,439</td>
</tr>
<tr>
<td>FY2021</td>
<td>50,147</td>
</tr>
<tr>
<td>FY2022</td>
<td>52,586</td>
</tr>
</tbody>
</table>

**Topic 2** Education Content Delivery

We offer JAL STEAM SCHOOL, a class in which pilots explain the world of aircraft and aviation from the perspectives of STEAM®. In addition, JAL STEAM SCHOOLS Portable, an interactive program that summarizes the contents of the class in an easy-to-understand manner, is exhibited in science museums and other venues throughout Japan to provide opportunities for more people to develop their creative thinking skills. Furthermore, in collaboration with DOCOMO gacco, we introduced “People who Work in Airline Industry” presented by JAL Group employees in gacco®, a video learning service.

**Topic 3** Culture and Sports Support

In support of a D&I society that recognizes individual differences and promotes active participation, we have expanded our support and sponsorship from the “the School of Challenge for Tomorrow” program* to encompass all five programs under “the School of Challenge for Tomorrow” initiative* and are working to further promote a barrier-free mindset through parasports so that everyone can feel the importance of challenging themselves to something new.

**Number of Elementary School Students experiencing Wheelchair Basketball**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2021</td>
<td>12,559</td>
</tr>
<tr>
<td>FY2022</td>
<td>23,960</td>
</tr>
<tr>
<td>FY2023</td>
<td>73,246</td>
</tr>
</tbody>
</table>

**Topic 4** Ensuring Air Transport and Supporting Affected Areas

In response to the earthquake off the coast of Fukushima Prefecture in March 2022, from the day after the earthquake, we increased scheduled flights to and from the Tohoku region, assigned larger aircraft and operated extra flights (March to April: 672 flights) to maintain and secure air transportation for people in the Tohoku region. In addition, we conducted the following activities to provide assistance for natural disasters that occurred in Japan and overseas.

**FY2022 Support Results**

In FY2022, we supported the following initiatives:

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Financial Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthquake in Turkey and Syria</td>
<td>JAL Charity miles 350,154</td>
</tr>
<tr>
<td>Japan</td>
<td>2,275,052</td>
</tr>
<tr>
<td>Earthquake in Nepal</td>
<td>JAL Charity miles 277,288</td>
</tr>
<tr>
<td>Earthquake in Nepal</td>
<td>JAL Charity miles 77,166</td>
</tr>
</tbody>
</table>

For information on Charity Miles, visit the JAL website.

**Experiencing JAL STEAM SCHOOLS Portable**

An online class on the job of cabin attendants

**Number of JAL Group employees in gacco®, a video learning service**

<table>
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<tr>
<th>Fiscal Year</th>
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</tbody>
</table>

**Evaluation of sustainability**

**Evaluation of workstyle innovation**

**Evaluation of DX initiatives**

**Evaluation of disclosure**

**Evaluation of Wellness Promotion**

**Major External Evaluations (2022 to 2023)**

Major ratings and awards are also posted on the JAL website.


**Comprehensive evaluation of service quality, safety well-being initiatives, and sustainability initiatives**

**Evaluation of airport and in-flight products and services**

- SKYTRAX® World’s Best Airline 2022
- SKYTRAX® World’s Best Economy Class 2022
- SKYTRAX® World’s Best Economy Class Airline Seat

**Evaluation of sustainability**

- Dow Jones Sustainability Indices
- FTSE 4 Good
- FTSE Blossom Japan Index
- CDP

**Evaluation of DEI initiatives**

- JosiRainbow/DI Award 2022

**Evaluation of workstyle innovation**

- JAL REPORT 2023

**Evaluation of DX initiatives**

- JAL REPORT 2023

**Evaluation of disclosure**

- JAL REPORT 2023

**Evaluation of Wellness Promotion**

- JAL REPORT 2023