



China Airlines Corporate Sustainability Report 2021



CONTENTS

Preface

• About the Report	4
• Letter from Management	6
• Business Overview	8
• 2021 ESG Performance and Recognition	9
• COVID-19 Special Column	12

1 Sustainability Management

1-1 Sustainability Vision and Strategies	16
1-2 Sustainability Management Structure	17
1-3 CAL's Sustainability Value	18
1-4 Materiality Analysis and Stakeholder Engagement	23
1-5 Achieving Sustainable Development Goals	37

2 Value Creation

2-1 Trust G	42
2-2 Human Resources S	66
2-3 Cooperation G	84
2-4 Environment E	91
2-5 Society S	116

3 Corporate Governance

3-1 Governance Framework G	128
3-2 Operational Achievements G	130
3-3 Regulatory Compliance G	132
3-4 Risk Management G	133

ESG Data and Appendix

• Financial Performance	140
• Customer Satisfaction Table in 2021	143
• Management of Material Human Rights Issues in 2021	143
• Relevant Data Statistics of Human Resources	146
• Environmental Performance	152
• GRI Content Index	154
• The United Nations Global Compact Comparison Table	156
• The Sustainability Accounting Standards Board (SASB) Table	157
• Independent Limited Assurance Report	158

Contents

Preface

- About the Report
- Letter from Management
- Business Overview
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix



Contents

Preface

- About the Report
- Letter from Management
- Business Overview
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

We Are Always Here for You

Preface

- About the Report
- Letter from Management
- Business Overview
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

Contents

Preface

- **About the Report**
- Letter from Management
- Business Overview
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

About the Report

China Airlines (hereinafter referred to as "CAL") publishes corporate sustainability reports and discloses related information on its Corporate Sustainability website on a regular basis to maintain good and smooth communications with all stakeholders. The coronavirus disease 2019 (COVID-19) continued to devastate the global aviation industry in 2021. CAL remained committed to its mission and sense of responsibility for corporate sustainable development, and continued to promote sustainable environmental, social, and governance (ESG) practices. In the midst of a global pandemic, CAL has remained the lifeline for Taiwan's economy and the fight against the pandemic with shipments of the largest quantities of COVID-19 vaccines for Taiwan. We leveraged our network and services to transport tens of millions of doses of vaccines to Southeast Asia and Oceania, and used our strengths to fight the pandemic together. CAL also demonstrated its corporate resilience with quick adjustments of its operations to focus on cargo delivery and utilized the capacity of its 21 cargo aircrafts to maintain the delivery of cargo. With hundreds of chartered cargo flights in a single month, we set a new record for cargo delivery and maintained the economic connections between Taiwan and the world.



Cover Story

CAL continues the mission of the "National Team of the Sky" which started in 2020 and made use of its capacity for cold chain transportation to support national disease prevention policies and transport vaccines. This rare image is captured and reproduced on the cover of this Corporate Sustainability Report.

In the center of the image is CAL's newest Boeing 777F cargo aircraft in ground operations after delivering a shipment of vaccines. The image is intersected with illustrations while refreshing colors and image composition are used to communicate CAL's commitment to transportation professionalism and corporate social responsibility.

CAL's new passenger and cargo fleets as well as corporate ESG and sustainability achievements are also disclosed in this Report.



Guidance for Reading the Report



COVID-19 Icon

Explanation of actions implemented in response to the pandemic



Event Icon

Explanation of special incidents



Performance Icon

Represent our achievements and performance



GRI Icon

The corresponding GRI disclosure items



Refer to Icon

More information on other pages of the Report



ESG Icon

The icon is used to specify environmental / social / governance issues



China Airlines



Mandarin Airlines



Tigerair Taiwan



Contents

Preface

- About the Report
- Letter from Management
- Business Overview
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Reporting Principles & Standard Disclosures GRI 102-54

The Report is prepared in accordance with the International IR Framework published by the International Integrated Reporting Council (IIRC), the GRI Standards Core Option published by the Global Sustainability Standards Board, the sustainability metrics published by the Sustainability Accounting Standards Board, and the United Nations (UN) Global Compact. The [GRI Content Index](#), [SASB Comparison Table](#), and [UN Global Compact Comparison Table](#) are described in the ESG Data and Appendix.

Report Period & Boundary GRI 102-45, 102-50

• Report Period

The Report discloses CAL's information from January 1, 2021 to December 31, 2021. Some material information up to April 30, 2022 is also reported.

• Report Boundary

The Report discloses all information on CAL. Considering commercial correlation between CAL and its subsidiaries and the financial materiality (Note), Mandarin Airlines and Tigerair Taiwan are also disclosed in some index in the Report.

Note: China Airlines, Mandarin Airlines, and Tigerair Taiwan account for the 97% of the consolidated revenue.

Guarantee of Truthful Reporting GRI 102-56

• Internal Audit

All data and information disclosed in the Report are provided by the responsible departments of CAL, included in the internal control system in accordance with the procedures for the preparation and verification of the Corporate Sustainability Governance Regulations and quality documents, proofread and examined by the Executive Secretary (Corporate Development Office), Corporate Sustainability Committee, submitted to the Chairman for review and approval, and then reported to the Board of Directors according to CAL Sustainable Development Best Practice Principles.

• External Assurance

The Report has been verified by KPMG Taiwan in accordance with the GRI standards and the limited assurance of ISAE 3000. The truthfulness of the Report is guaranteed. Please refer to the ESG Data and Appendix for the [Independent Limited Assurance Report](#).

• Data Quality Management

Financial data in the Report and data relating to ISO quality, information security, privacy information, occupational safety and health, environmental and energy management, and greenhouse gas emissions have been certified or verified by independent third parties.



Corporate Sustainability Website

Financial Data	Deloitte Taiwan
ISO 9001 Quality Management System	DNV GL
ISO 27001 Information Security Management System	TCIC
ISO 27701 Privacy Information Management System	TCIC
ISO 45001 Occupational Health and Safety Management System	SGS
TOSHMS Taiwan Occupational Safety and Health Management System	SGS
ISO 14001 Environmental Management System	DNV GL
ISO 50001 Energy Management System	DNV GL
ISO 14064-1 Greenhouse Gas Emissions	DNV GL

Publication History GRI 102-51, 102-52

This Report is published in both Chinese and English every year and available on the CAL's CSR website. The dates of release are as follows:

First edition release date	August 2014
Previous edition release date	June 2021
Current edition release date	June 2022
Next edition release date	June 2023

Feedback GRI 102-1, 102-53

If you have any suggestions or questions about the Report, please contact:

China Airlines Ltd.	
Unit	Strategic Planning Department, Corporate Development Office
TEL	886-3-399-8530
E-mail	csr@china-airlines.com
Address	No. 1, Hangzhan S. Rd., Dayuan Dist., Taoyuan City, 33758, Taiwan (R.O.C)
Website	https://calec.china-airlines.com/csr/en/

Letter from Management

GRI 102-14

Contents

Preface

- About the Report
- **Letter from Management**
- Business Overview
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix



Chairman
Su-chien Hsieh

Coexistence with the Pandemic

The COVID-19 pandemic continued to change human lives in 2021 as it had in the past two years. Due to the continuous spread of the pandemic, countries have enhanced vaccination and actively increased the coverage rate. However, the mutations of the virus and breakthrough infections have created a global environment in which we must co-exist with the pandemic. Countries continue to implement strict border controls and rigorous quarantine measures and the global aviation industry has suffered a series of severe setbacks. CAL upholds its commitment to protection of the homeland from the head office to outstations. Units responded quickly with teamwork, actively adjusted passenger and cargo flights, worked from home in separate groups, and prepared disease prevention supplies. We sought to protect the health and safety of employees on the front lines of disease prevention and worked hard to complete our transportation missions. We used both passenger and cargo services to ensure the delivery of disease prevention supplies, support for the government's travel bubbles, inclusion of the IATA Travel Pass, optimization of pilot programs for digital disease prevention services, optimization of fleets to create safe zero-contact cabins, and numerous critical missions for the transportation of vaccines. We signed collective bargaining agreements with the Union to demonstrate harmony between labor and management and create win-win for both parties. In our co-existence with the pandemic in 2021, the CAL team understood what is required and worked hard together to take every new step with steadfast resolve.

Cargo Transportation Miracle in Adversity

The performance of the global cargo transportation market in 2021 was spectacular. As the world shook under the impact of the pandemic, CAL quickly implemented adjustments and focused on cargo transportation in operations. We made full use of our advantages with 21 cargo flights and ensured the non-stop delivery of cargo, thereby maintaining the economic connection between Taiwan and the world. CAL cargo services reached record highs in 2021, including more than a hundred chartered cargo flights in a single month, a record high in monthly income with TWD 15.4 billion in cargo revenue in December, at least TWD 10 billion in revenue from cargo services each month for 5 consecutive months, and more than TWD 100 billion in revenue from cargo transportation services for the entire year. The results have been the best performance in 62 years and it has been a great year for CAL's cargo services. CAL's Global Cargo Division is an elite team that consists only of 800 employees. They have demonstrated ultra-high resilience and actively expand CAL's cargo services. With the hard work of more than 1,000 pilots and the full support of the repairs and maintenance and ground service units, CAL has achieved great results in cargo services in 2021. CAL added 3 brand-new Boeing 777F cargo aircrafts to its fleet. With the original 18 Boeing 747F cargo aircrafts, the fleets of 21 cargo aircrafts have consolidated its competitiveness in the cargo transportation industry. CAL operates approximately 540 flights each month and an average of 120 flights each week. With efficient integration of passenger and cargo transportation capacity, CAL continues to optimize flight operations and connection efficiency with outstanding performance in operating hundreds of chartered passenger and cargo flights each month. The overall revenue also broke records and reached new heights with TWD 10 billion in monthly revenue which increased CAL's ranking in global cargo services.

In response to the changes in the air cargo market structure caused by the pandemic, CAL has taken on the mission of transporting disease prevention supplies, supporting growth in the economy, and transporting daily necessities for the people. The demand for small items such as automotive components and semiconductor ICs to large objects such as automobiles, precision IC machinery, and fresh produce has also increased. CAL uses its professional cargo team to transport fresh produce for the people of Taiwan. The produce consists mainly of meat and seafood products, including Wagyu beef from Japan and Mexican lobsters and Boston lobsters from the United States, Canada, and Australia. CAL became the first airline in Taiwan to receive CEIV Pharma Cold Chain certification and it offers trusted professional cold chain management and transportation services. During the pandemic, CAL has transported COVID-19 vaccines purchased by Taiwan and successfully won business opportunities for the transshipment of vaccines by completing deliveries to several countries in Southeast Asia and Oceania. CAL has transported more than 75 million doses of COVID-19 vaccines with a weight of more



Contents

Preface

- About the Report
- **Letter from Management**
- Business Overview
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

than 350 tons, which fully demonstrated its commitment to social responsibility and fulfillment of humanitarian values. With rapid growth in CAL's cold chain transportation, the use of temperature control containers has also increased. The number of temperature control containers transported by CAL in 2021 increased by more than 100% compared to levels before the outbreak of the pandemic.

Upholding Sustainable Development

CAL upholds its mission and sense of duty for corporate sustainability. We have always supported the United Nations Sustainable Development Goals (SDGs) and we actively promote sustainable ESG actions to combat climate change. CAL became the first company in Taiwan to support the initiatives of the Task Force on Climate-Related Financial Disclosures (TCFD). We were the first in the global aviation industry to publish the first TCFD report in both Chinese and English. We support international carbon reduction initiatives and announced our target for "net zero emissions" by 2050. We continue to promote the ECO Travel Carbon Offsetting Program for environmentally friendly travel. CAL also purchased A321neo, the next-generation fuel-efficient passenger aircrafts, and use sustainable alternative fuels for return flights so that we can take real actions to reduce carbon emissions and take care of the Earth. CAL has never forgotten its social responsibility and common growth with the society during the pandemic. We fully implement disease prevention tasks and actively pay attention to the development trends of the digital health platform to jointly protect public safety and health. We also invested in charity and worked with Huashan Social Welfare Foundation to take care of the disadvantaged in local communities and play the role of corporate citizens.

CAL also received wide acclaim in Taiwan and foreign countries for its performance in sustainability in 2021. CAL was selected in the FTSE4Good Index Series for six consecutive years, recognized in the Silver Class in the latest S&P Global Sustainability Yearbook, Taiwan Corporate Sustainability Awards (TCSA) for the eighth consecutive year, and won the Global Corporate Sustainability Awards (GCSA) for the third consecutive year. CAL broke records in the results of the 2021 Dow Jones Sustainability Indices (DJSI) and became the only company in Taiwan's transportation industry to be selected as a constituent of the "Dow Jones Sustainability Index" for six consecutive years. We also exceeded our past performance by finishing in second place in the global aviation industry. CAL's long-term commitment to sustainable development has received international recognition.

A Solid Next Step

As the global pandemic continues, CAL has incorporated brand-new 777F cargo aircrafts into its fleet and added brand-new A321neo narrow-body passenger aircrafts in 2021. The brand-new fleet will focus on providing zero-contact services, superior disease prevention measures, upgraded flat-bed Business Class seats, latest personal entertainment system and largest screen, high-speed Wi-Fi services in the cabin, and free text message services. The spacious and comfortable cabin is complemented by a cargo hold system with increased capacity and efficiency. The cargo space is increased by 10-20% and facilitates safe and rapid loading. Compared to narrow-body aircrafts of the previous generation, A321neo reduces fuel consumption by 15-20%, noise by 75%, and NOx emissions by 50%. When the new A321neo aircrafts were delivered to Taiwan, CAL made special arrangements to use sustainable aviation fuels, as it did for A350 aircrafts, to protect the environment. Sustainable aviation fuels reduce carbon emissions by 8% when compared with traditional fuel. CAL takes real actions to save fuel and reduce carbon emissions to support its commitment to net zero emissions by 2050, reduce greenhouse gas emissions, and protect the environment. After the new A321neo aircrafts arrive in Taiwan and preparation and certification are completed, it will be used as the main aircraft type for regional flights and for flights to Northeast Asia, Southeast Asia, and China to strengthen CAL's regional flight network and help CAL take a solid next step.



President
Shing-hwang Kao

Business Overview

GRI 102-2, 102-3, 102-4, 102-6, 102-7

Contents

Preface

- About the Report
- Letter from Management
- **Business Overview**
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

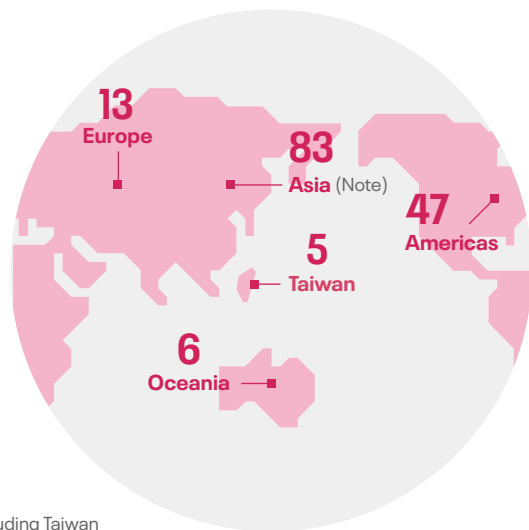
1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Number of Destinations



Note: Excluding Taiwan

Destinations (including the CAL Group and code-shared routes)

Country	29	Destination	154
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Note 1: Statistics as of December 31, 2021.

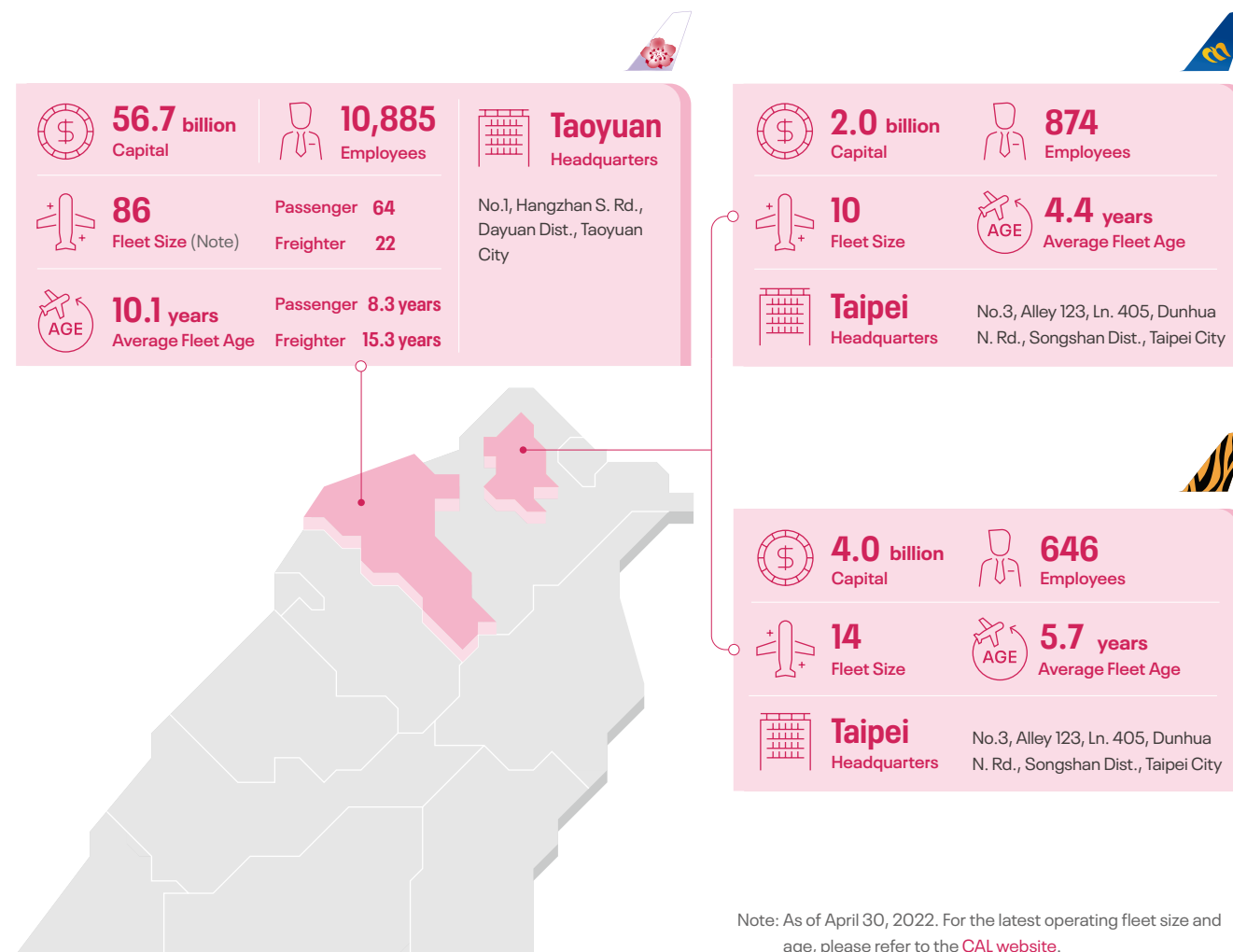
Note 2: The latest destinations please refer to the [CAL website](#).

Passenger Load (including the CAL Group)

China	12.6%	Oceania	10.7%
Hong Kong	9.9%	Americas	18.5%
Northeast Asia	6.1%	Europe	16.0%
Southeast Asia			18.9%

CAL (2610) is the largest airline in Taiwan. Based in Taiwan Taoyuan International Airport, CAL mainly provides international passenger and freight air transport services. CAL has two subsidiary airlines: Mandarin Airlines (serving domestic and regional markets) and Tigerair Taiwan (offering a low-cost business model). With three airline companies for market segmentation, shared resources, and mutual support, CAL provides a variety of options for customers. For more information on the business development of the fleet and route network, refer to Business Overview in [CAL's Annual Report](#). Through codeshare agreements with other airlines, the CAL Group offered flights to / from 29 countries and 154 destinations worldwide, and Tigerair Taiwan served 22 destinations and 29 routes in 2021. Although the COVID-19 pandemic in 2021 reduced passenger flights, CAL benefited from strong demand for cargo services and the shift from maritime transport to air cargo services as a result of container pileups in ports, which have increased the shipping costs. CAL Group's consolidated net profit was TWD 11.127 billion, and final profit after tax attributable to the parent company was TWD 9.38 billion.

Refer to **3-2 Operational Achievements**



Note: As of April 30, 2022. For the latest operating fleet size and age, please refer to the [CAL website](#).

Preface

- About the Report
- Letter from Management
- Business Overview
- **2021 ESG Performance and Recognition**
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

2021 ESG Performance and Recognition



6th time selected for DJSI Emerging Markets Index

The only Taiwanese airline selected for DJSI Emerging Markets for six consecutive years and ranked in 2nd place among the world's airlines.



6th time selected for FTSE4Good Index Series

Selected in the FTSE4Good Index Series for six consecutive years.



3rd time in GCSA Award

CAL won the Sustainability Reporting Award for the third time and won the Gold Award in 2021.



3rd time selected for FTSE4Good TIP Taiwan ESG Index

Selected in the FTSE4Good TIP Taiwan ESG Index for the third time.



8th time in TCSA Award

CAL won the Taiwan Corporate Sustainability Award for the 8th consecutive year and won the Platinum Award in the Transportation Industry for the Sustainability Report for 2021.



5th time selected for the Sustainability Yearbook

CAL became the only airline company in Taiwan that was selected for the Sustainability Yearbook for the 5th time in 2021.



Taiwan Ratings revised outlook to "stable"

The global aviation industry faced severe challenges during the pandemic and the credit ratings of most airline companies were downgraded. However, CAL has maintained rapid growth in cargo services and stable prospects and Taiwan Ratings revised CAL's outlook from "negative" to "stable" in October 2021 and confirmed CAL's long-term and short-term credit ratings as "twBBB+/twA-2".

Governance G



Top 6%-20% of TWSE / TPEX listed companies

Selected as the top 6%-20% of the excellent corporation award in the Seventh Corporate Governance Review.



1st airline in Taiwan to conduct sustainability audits

Taiwan's first airline to perform sustainability audits.



10th time IOSA safety certification

CAL met the IATA Operational Safety Audit (IOSA) standards for the 10th time and continue to meet the highest international standards.



5th time selected for Taiwan EMP 99 Index and Taiwan HC100 Index

Selected in the Taiwan Employment Creation 99 Index and the Taiwan High Compensation 100 Index for five consecutive years.



ISMS and PIMS certification introduced for core information systems

In 2020, the Company's core information systems passed the "Information Security Management System (ISMS) ISO 27001: 2013" and "Privacy Information Management ISO 27701: 2019" certification. To maintain the validity of the certificates, the Company has passed the annual reinspection in 2021. The Company shall continue to implement monitoring, review, maintenance, and improvements to ensure compliance.



IATA Travel Pass pilot program

CAL actively develops the digital health platform and has tested the International Air Transport Association (IATA) Travel Pass starting from August 30, 2021. We introduced digital health certification procedures and activated them for trial operations for return flights from 8 destinations including Los Angeles, Ontario, San Francisco, New York, Vancouver, Frankfurt, London, and Singapore to provide passengers with a safer flight experience.



Co-organized the 2021 Flight Safety Operations Seminar

The 2021 Flight Safety Operations Seminar was organized by the China Aviation Development Foundation and the Civil Aeronautics Administration of the Ministry of Transportation and Communications (MOTC), and co-organized by CAL. The Seminar was organized to increase overall flight safety in Taiwan and prepare for the opening of Taiwan to foreign visitors after the pandemic.

Contents

Preface

- About the Report
- Letter from Management
- Business Overview
- **2021 ESG Performance and Recognition**
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Environmental **E**



6th time received highest scores in environmental management report and climate strategy of DJSI

Received the highest score for the 2020 environmental management report and climate strategy of DJSI for six consecutive years.



8th time in TCSA Climate Leadership Award

Awarded the Climate Leadership Award for eight consecutive years since 2014.



1st to the establishment of an environment, energy, and greenhouse gas inventory management system

First company in Taiwan's transportation industry to establish environment, energy, and greenhouse gas inventory (ISO 14001, ISO 50001, and ISO 14064-1) management system and continues to pass external third-party inspection/certification each year.



The only airline to receive the Excellence Award for Low-Carbon Products from the Environmental Protection Administration, Executive Yuan

CAL Group's Mandarin Airlines offers comprehensive low-carbon services which reduced its carbon footprint by more than 30% within 3 years and received a Carbon Label. It became the only airline company to participate in the GreenPoint program of the Environmental Protection Administration and it also received the Excellence Award for Low-Carbon Products from the EPA.



10th consecutive year in response to CDP and awarded Leadership rating

CAL has responded to the CDP climate change questionnaire for 10 consecutive years since 2012 and actively promotes and implements supply chain / value chain management. Ranked Leadership in CDP Supplier Engagement Rating (SER) in 2021.



Received awards for green procurement from Taoyuan City Government

CAL's maintenance facilities and Taoyuan International Airport Service won the 2020 Taoyuan City Green Procurement Award for the Private Sector.



1st to announce target for Net-Zero Carbon Emissions by 2050

CAL became the first airline company in Taiwan to announce the target for net zero emissions by 2050 and create plans for reducing carbon emissions.



1st to use Sustainable Aviation Fuel (SAF)

CAL used SAF for the new energy-efficient aircraft A321neo after using SAF for new A350 aircrafts in 2017, becoming the first airline company in Taiwan to use SAF.



The only airline group in Taiwan to promote green fares

Starting in 2021, Mandarin Airlines and Tigerair Taiwan followed CAL's footsteps and included all domestic and foreign flights into the scope of the ECO Travel carbon-offsetting services and became only airline group in Taiwan to promote green fares.

Social **S**



75 million doses of COVID-19 vaccines transported

The pandemic continued to pose grave threats in 2021 and CAL completed the transportation of masks, gloves, negative pressure isolation rooms, and other medical supplies. It transported more than 350 tons of COVID-19 vaccines which totaled more than 75 million doses.



2 million in donations

CAL organized the first mask charity sale event in 2021 and encouraged all employees to make donations by purchasing masks. A total of 1,081 employees participated in the event and donated TWD 2,000,000 to disadvantaged groups such as the White Kite Children's Home, Adolescents' Home Taoyuan, and Muhsiang Sweet Home provide support during the pandemic.



99.41% union participation

99.41% of employees participating in labor unions.



45,000 students

Sponsored book programs for 102 schools throughout Taiwan to help approximately 45,000 students



Over 800 students

Since 2014, volunteers of CAL's Love All Around Team have visited 15 counties and cities, 27 townships, and 56 junior high schools, elementary schools, and social welfare organizations in Taiwan. They provided care for 3,447 students. In 2021, CAL volunteers complied with disease prevention regulations and voluntarily visited remote rural areas to teach students about aviation. The activities connected education with the ecology to create a positive cycle for the children.

Contents

Preface

- About the Report
- Letter from Management
- Business Overview
- 2021 ESG Performance and Recognition
- COVID-19 Special Column

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix



Over 18.25 million in charity contributions

Invested TWD 18,252,660 in charity activities throughout 2021.



360 senior citizens

Provided care for 360 disadvantaged senior citizens at three events in 2021.



105 people with disabilities employed

CAL was the only company in the industry to receive the Golden Wingspan Award. CAL employed 105 people with disabilities.



Declaration for joining "TALENT in Taiwan"

CAL joined "TALENT in Taiwan" to jointly promote sustainable talent development with "CommonWealth Learning", "Cheers", and many other companies in Taiwan.

02.25

Received top ranking in the "International and Cross-Strait Flights-Full-Service Flight Category" in the Golden Wing Awards.



11.13

Selected as a constituent of the Dow Jones Sustainability Index (DJSI) for the 6th consecutive year and received 2nd place ranking in the global aviation industry.

Member of
Dow Jones Sustainability Indices

Powered by the S&P Global CSA

12.09

Rated the "Best Airline in North Asia" by the renowned American travel magazine Global Traveler for the 9th consecutive year and won the APEX Five Star Global Airline in 2022 from the Airline Passenger Experience Association (APEX) for the 5th consecutive year.



12.01

Received the Gold Award in the "Enterprise COVID-19 Prevention Alliance."

Sustainability Award Silver Class 2021

S&P Global

02.26

Received "Aviation Industry Silver Class" rating from global ratings institution S&P Global.

11.17

Won the Sustainability Report Awards in the Taiwan Corporate Sustainability Awards (TCSA) for the 8th consecutive year and the Global Corporate Sustainability Awards (GCSA) for the 3rd consecutive year.



Contents

Preface

- About the Report
- Letter from Management
- Business Overview
- 2021 ESG Performance and Recognition
- **COVID-19 Special Column**

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

COVID-19 Special Column

The primary tasks for airline companies during the pandemic are “survival by fighting the pandemic”, “development of cargo services”, and “consolidation for restarting operations”. Most people predict that the recovery of pre-pandemic activities will only be achieved in 2024. The pandemic has caused a wave of bankruptcy in the aviation industry and 44.6 million people employed by the global aviation industry face risks of unemployment ([Refer to 1-4-1 Analysis of Business Environment in the Aviation Industry](#)). Operators have reduced flights, cut pay, and laid off employees. Those with poor financial conditions are now at risk of suspension of operations, bankruptcy applications, or closure. Flag carriers have implemented flexible adjustments of their business strategy and prioritized cargo over passenger services to optimize operations.

In response to the changes in the air cargo market structure caused by the COVID-19 pandemic, CAL has taken on the mission of transporting disease prevention supplies, supporting growth in the economy, and transporting daily necessities for the people. Our deliveries range from small items such as automotive components and semiconductor ICs to large objects such as automobiles, precision IC machinery. Shipments previously completed by maritime transport such as e-commerce and traditional textile industries now rely on air transport as it has become increasingly difficult to get a hold of containers. The pandemic has also powered growth in the stay-at-home economy as demand for online shopping grew. CAL continues to monitor the latest changes in the market and uses rapid and flexible adjustments of flight schedules and manpower to quickly respond to changes. They have become the key to CAL’s survival during the pandemic and its revenue of more than TWD 100 billion from cargo services. CAL also recorded its best performance in its 62-year history with increase in revenue from CAL cargo services.

Refer to **3-2 Operational Achievements**

The “National Team of the Sky” Flying on for You — Transportation of COVID-19 Vaccines and Medical and Relief Supplies

Refer to
2-5 Society

As the COVID-19 pandemic continued to ravage the global economy in 2021, CAL took on its role as the “National Team of the Sky” and delivered disease prevention supplies and emergency medical supplies, and transported COVID-19 vaccines Taiwan needed from Europe, the United States, and Asia. CAL made the highest number of COVID-19 shipments to Taiwan with 37 trips, and transported 28.897 million doses of COVID-19 vaccines (76.0%). CAL also leveraged its flight networks for transshipment of vaccines purchased by other countries through Taiwan. We imported and transshipped approximately 75 million doses of vaccines of various brands totaling over 350 tons and played a crucial role in international vaccine distribution. CAL transported 2 sets of negative pressure isolation rooms produced in Japan, totaling 30 tons, in 2021.



CAL Transported COVID-19 Vaccination



CAL Transported Negative Pressure Isolation Rooms Produced in Japan

Taiwan’s COVID-19 Vaccine Air Transport Statistics

Company	Number of Trips	Shipment Volume (doses)	Proportion (%)
China Airlines	37	28,897,464	76.0
Japan Airlines	6	4,211,750	11.1
Cargolux Airlines International	2	1,841,580	4.8
EVA Air	5	1,792,000	4.7
KLM	1	594,100	1.6
Korean Air	2	382,100	1.0
Turkish Airlines	3	285,900	0.8
Total Air Transport Volume of Vaccines	56	38,004,894	100.0

Contents

Preface

- About the Report
- Letter from Management
- Business Overview
- 2021 ESG Performance and Recognition
- **COVID-19 Special Column**

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Preemptive Protective Measures — Safeguarding Public Health and Safety

Refer to **2-1 Trust**
2-2 Human Resources

CAL actively complies with disease prevention regulations of the competent authority of health and implements health management tasks for preemptive preparation. We are committed to providing you with a safe, secure, and comfortable journey. We take enhanced measures in pre-flight preparation and your journey to your destination to make your flight safer. We set up COVID-19 information service sections and enhanced measures for COVID-19 in 2020 and we also set up a dedicated disease prevention section on the official website in 2021 to support passenger requirements. We provide one-stop services necessary for travel during the pandemic and protect public health. We provide information on immigration regulations of different countries, PCR test hospitals (list of hospitals), disease prevention hotels, airport shuttle buses, and Wi-Fi and passengers can access the information and convenient services on the platform.



Enhanced Disinfection in CAL Park



Smart Disease Prevention Gate in CAL Park



COVID-19 Vaccination



COVID-19 Service Information



Enhanced Measures for COVID-19



Disease Prevention Section

Building Momentum for Reopening of Cargo / Passenger Transport — Combination Strategies

Refer to **1-3 CAL's Sustainability Value**
2-1 Trust

The pandemic continued to spread in 2021 with the arrival of new variants. It has minimized passenger flights and increased cargo flights. Due to disease prevention policies and strict border controls adopted by different countries, recovery in the passenger service market has been difficult. In our revenue management, we have prioritized cargo services for adjustments and plans and we implemented passenger service plans to maximize flight benefits. We adopted multiple strategies in response including the maximization of cargo services, flexible adjustments of passenger services, optimization of fleet operations, maintenance of robust financial conditions, and obtaining access to economic relief.



COVID-19
Special Column



CAL "Brand-New A321neo"



In November 2021, CAL Inaugurated the New Energy-Efficient A321neo

*We Look Forward to Meeting You Again
and Reconnecting the World*



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

CHAPTER 1



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
 - 1-2 Sustainability Management Structure
 - 1-3 CAL's Sustainability Value
 - 1-4 Materiality Analysis and Stakeholder Engagement
 - 1-5 Achieving Sustainable Development Goals
-

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

*China Airlines Included in DJSI for
6 Consecutive Years*

Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

1-1 Sustainability Vision and Strategy

1-1-1 CAL's Sustainability Vision

China Airlines responds to the 17 UN's SDGs officially launched in 2016 and follow the SDG Compass and related sustainability reports of the International Civil Aviation Organization (ICAO), the Air Transportation Action Group (ATAG), and the international transportation industry. CAL chose to focus on 11 SDGs that established the direction of CAL's sustainability efforts. This is a way for CAL to achieve sustainability and promise to create stakeholder value.

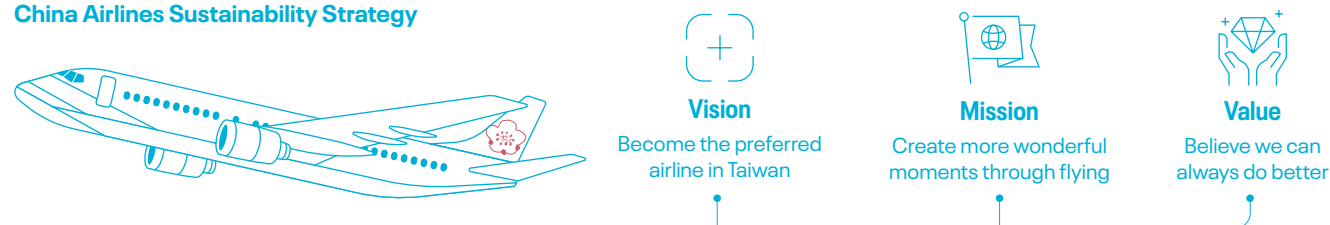
11 Sustainable Development Goals Focused from CAL



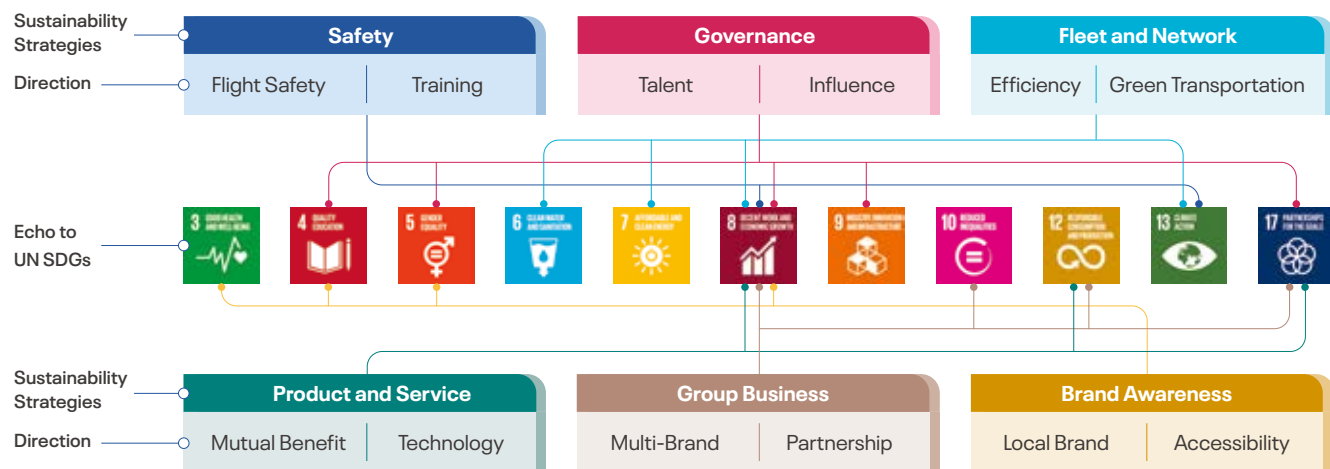
1-1-2 Sustainability Strategy

CAL aims to "Become the preferred airline in Taiwan" and embraces the mission to "Create more wonderful moments through flying". We adopted "Safety" and "Governance" as the basis for sustainable development and incorporated our main strategies of "Fleet and Network", "Products and Services", and "Group Business" to continue to enhance CAL's "Brand Awareness" in the minds of customers. We initiated three action plans to enhance the brand image including "Resilient Intelligence: resilient operations to combat extreme weather and changes in the business environment", "Local Globalization: taking Taiwan's local culture to the world", and "Youth Innovation: connect with the innovative generation with youthful thinking". The action plans reflect our lasting commitment to environmental, social, and governance. The six sustainability strategies also support the UN's SDGs and we establish implementation strategies to create a strategic framework for sustainable development.

China Airlines Sustainability Strategy



Sustainability Strategy Framework



1-2

Sustainability Management Structure

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure**
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

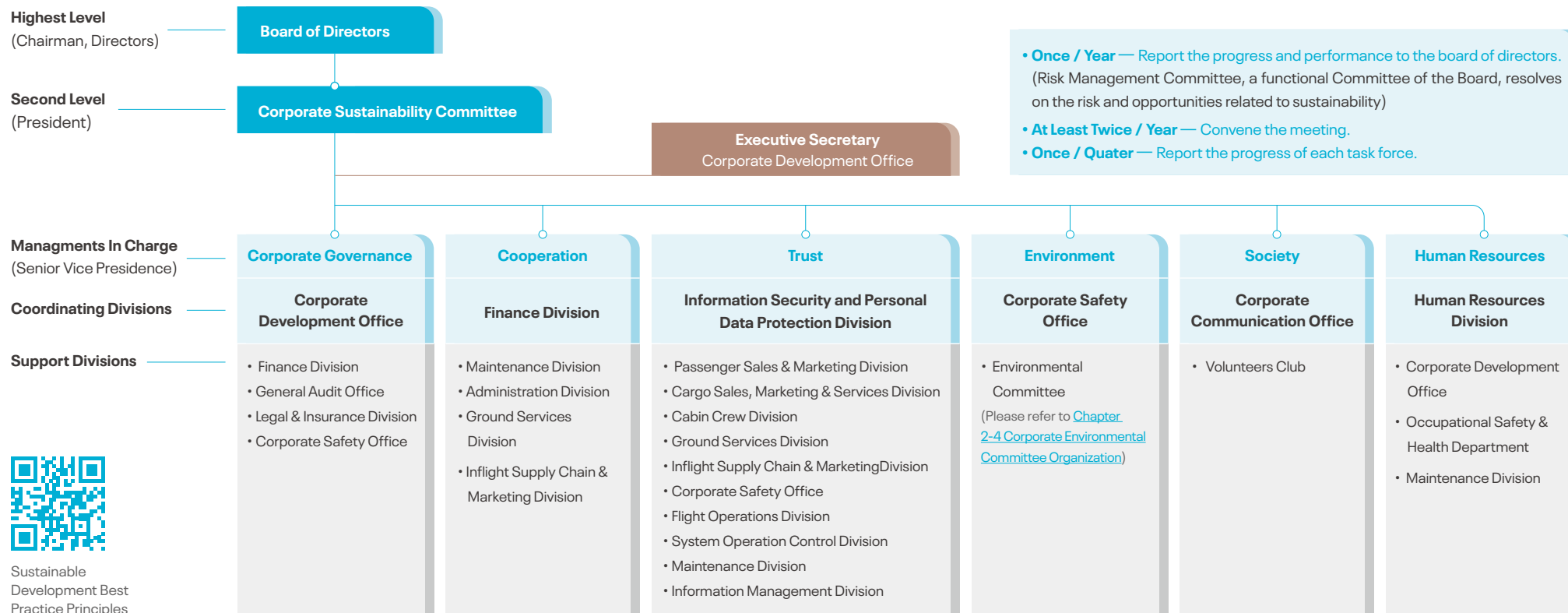
3 Corporate Governance

ESG Data and Appendix

1-2-1 Corporate Sustainability Committee

Under the challenging and rapid changing environment with the growing trend regarding sustainability, CAL followed the international trend of sustainability and referred to the experience from the benchmarking companies based on its mission and sense of duty for the sustainable development of the Company to establish its Corporate Sustainability Committee in 2014, the highest governing body of sustainability promotion, and set the Sustainable Development Best Practice Principles. The Corporate Sustainability Committee comprises six task forces which are responsible for setting and implementing sustainable development goals to enforce the sustainable development. It also presents the CSR performance to the Board of Directors once every year to continue to strengthen the connection between the Corporate Sustainability Committee and the Board of Directors and improve sustainability actions.

Corporate Sustainability Committee



Sustainable Development Best Practice Principles

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value**
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

1-3

CAL's Sustainability Value

Building Momentum for Reopening of Cargo / Passenger Transport — Combination Strategies

Many countries have maintained strict lockdown and isolation measures for disease prevention in 2021. These measures have caused drastic cancellations of international passenger flights and caused a sharp decline in revenue. CAL actively supports the health management operations of the competent authority of health and adopted diverse strategies in response.



Making the Best Use of Air Cargo Transport Advantages

By leveraging its advantages in the Pharma Cold Chain certification, CAL took on the transportation of vaccines purchased by Taiwan in 2021 and has successfully secured business opportunities for the transshipment of vaccines. With the increase in global demand for cargo services, the growth in effective cold chain logistics has doubled, and we have leveraged the advantages of our extensive network to help transport vaccines ordered by other countries in transshipment from Taiwan to their destinations. CAL has quickly adjusted its focus on cargo operations and fully utilized the capacity of its 21 cargo aircrafts to keep the cargo flowing and maintain the economic lifeline between Taiwan and the world. During the pandemic, CAL has strengthened Taiwan's position as a transshipment hub, developed potential market, and made full use of freedoms of the air and cargo capacity. The number of our scheduled flights was increased to 117 per week in 2021. We have also arranged additional flights to meet the market demand, taking full advantage of the capacity of our 18 747F cargo aircrafts with 120-125 flights per week. CAL pursues cargo transport opportunities and supports cargo demand with belly capacity to increase overall revenue by integrating passenger and cargo transport resources. We added 3 new 777F cargo aircrafts to take advantage of their fuel efficiency and improve returns from routes. We also regularly review our routes and adjust them based on market demand. We prioritize high-priced cargo delivery services such as emergency transportation and special transportation to maximize the benefits of revenue management, and we pursue medium to long-term charter flights or charter cabins to stabilize flight loading and revenue. In 2021, CAL set a new record of more than one hundred charter flights per month, TWD 15.4 billion in cargo revenue per month, five consecutive months with cargo revenue exceeding TWD 10 billion, and annual cargo revenue exceeding TWD 100 billion.



Flexible Adjustments of Passenger Routes

CAL consolidating flights and operated key routes in accordance with the disease prevention and border opening status of each country based on market demand. We also adjusted our capacity to carry cargo in the belly of passenger aircraft to support cargo demand and increase revenue. Since 2020, CAL has made adjustments for passenger aircrafts to carry cargo, and used the bellies of passenger aircrafts on routes in Asia to take advantage of business opportunities. In 2021, CAL adopted a strategy of connecting the flight networks and maintaining core flight operations. It also enhanced revenue management for the sixth freedom and third/fourth freedoms to increase revenue. CAL has gradually resumed flights and increased the number of flights based on government policies for opening borders to certain countries or regions, short-term business travelers, or destinations for travel bubbles. We use the different brands of the Group to diversify and pursue growth in the domestic travel market. Our branch companies across the world continue to work with government and private institutions and actively organize chartered flights for Taiwanese businesses, companies, evacuation of citizens, and travel bubbles. We also organize seasonal and theme-based charter flights, charter areas, and charter cabins and offer customized products.



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix



Optimization of Fleet Operations

In response to the adoption of high-performance and fuel-efficient aircrafts, CAL introduced the first three 777F cargo aircrafts in 2021. It coincided with the peak of global air cargo traffic, which is currently the main source of profit for CAL. Based on our aircraft retirement plan, we introduced the next-generation Airbus A321neo aircraft at the end of 2021 to serve as the aircraft type for CAL's regional routes and replace Boeing 737-800 passenger aircrafts. The new fleet will focus on zero-contact service, high-standard vaccination, spacious and comfortable passenger cabins, with increased capacity and efficiency for the cargo hold system, and fuel efficiency. They will help reduce carbon emissions and protect the environment and their improved service quality and lower unit costs will contribute to the operational efficiency of the flight routes and enhance overall competitiveness.



Maintain Financial Stability

At the beginning of the pandemic, we made adjustments to the annual budget for administration and marketing and reduced non-urgent capital expenditures to control cash flow. We implemented flexible human resource management with special leave to reduce personnel costs. We also continuously considered the disposal of mothballed aircrafts, the sale of Boeing 738s and the early retirement of 744 passenger aircrafts. This allowed us to revitalize our aircraft assets to reduce operating costs and optimize operations. The continued growth of the cargo business, has generated cash flow, and the gradual recovery of passenger flights in the future will help boost the overall operations of the airline industry and optimize financial performance.



Applications for Relief Measures

The government has enacted legislation and passed relief measures that apply to aviation industries, such as waiver of parking fees, landing fees, housing and land use fees, subsidies for the purchase of disease prevention supplies, subsidies for disease prevention expenses, and credit guarantees and interest subsidies for loans. The Company continues to cooperate in the application procedures to relieve the pressure of business operations.



1-3-1 Business Model and Value Creation

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Capitals Input

(Unit: TWD million)



Sustainability Strategies

Governance — Root sustainable concept in value chain to make positive influence

Safety — Embed the safety culture into products and services

Fleet and Network — Promote highly efficient fleets and network to forward environmental friendliness

Brand Awareness — Promote local brand and transportation friendliness

Product and Services — Create sustainable services with sustainable value and technology

Group Business — Spread sustainability to group business to improve cooperation and sustainable development

Business Model





Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Value Creation			
	Output	Outcome	Corresponding Chapter
Financial	<ul style="list-style-type: none"> Operating revenue: TWD 132,140 million 	<ul style="list-style-type: none"> Revenue reduced by 24% compared to 2020, the EBITA rate increased by 36% compared to 2020. 	<ul style="list-style-type: none"> • 3-2 Operational Achievements (P.130)
Manufactured	<ul style="list-style-type: none"> • New aircrafts in the fleet in 2021: 777F: 1, A321neo: 2 • New passenger transport capacity created by the new aircrafts: 360 seats • Punctuality rate of high-level repair and maintenance service 100% • Number of incidents causing casualties or flight crashes: 0 • Number of existing destinations (including new ones): 77 passenger destinations / 36 cargo destinations • Number of passengers / cargo worldwide: 639 (million passenger-kilometers) / 7,550 (million ton-kilometers) 	<ul style="list-style-type: none"> • The 777F cargo aircraft is equipped with the GE90 engine, which is the same as that used in passenger aircrafts. This helps with engine management optimization and the lowering of maintenance costs. • The A321neo is a new narrow-body passenger aircraft with improved fuel consumption, unit cost, range, loading, and noise level. The fuel-efficient aircrafts will help reduce carbon emissions and protect the environment. • Achieved the target punctuality rate of high-level repair and maintenance service (100%) • Promote a safety culture based on the spirit of "safety awareness, full participation, active management, and implementation" to achieve zero safety incidents • No new passenger / cargo destinations in 2021 • Compared to 2020, global passenger transport decreased by 92% while cargo transport increased by 18.62% 	<ul style="list-style-type: none"> • 3-2 Operational Achievements (P.130) • 2-1 Trust (P.42)
Intellectual	<ul style="list-style-type: none"> • Revenue / number of passengers (seats) created by improved products or services: 6,870 • Number of cost-saving patents: 130 • Number of patents obtained: 1 • Number of R&D employees trained: 43 	<ul style="list-style-type: none"> • The A321neo cabin and equipment design were delivered starting from November 2021 • The software and hardware certification and installation of the "portable in-flight wireless streaming video" equipment were completed for the 738 fleet. • Manpower saved 8.15 man-month / year • Saved TWD 4.21 million in cost • CAL's intellectual property rights were continuously maintained • Enhance information staffs technology skills, support the development and update various information systems of the company 	<ul style="list-style-type: none"> • 2-1 Trust (P.42) • 2-2 Human Resources (P.66)
Human	<ul style="list-style-type: none"> • Number of new employees: 92 • New hire / recruitment retention rate in 2021: 83.04% • Retention rate of employees hired before 2021: 99.15% • Employee turnover: 4.80% • Total number of employee training hours: 354,495 • Total number of middle or top management training hours: 2,800 	<ul style="list-style-type: none"> • New hire retention rate increased by 31.12% compared to 2020 • Compared to 2020, the retention rate in 2021 increased by 0.10% • Compared to 2020, employee turnover decreased by 2.03% • Related training was organized based on the needs of business operations • Job-related training was organized to improve management knowledge and consensus 	<ul style="list-style-type: none"> • 2-2 Human Resources (P.66)
Natural	<ul style="list-style-type: none"> • Electricity consumption: 33,260 kWh • Carbon emission: 5,895,125 tons CO₂e • Waste disposal: 1,787,084 kg • Water consumption: 118.42 thousand tons • Number and percentage of green buildings: 2 / 66.67% • Solar photo voltaic investment: Power generated: 127,000 kWh • Sustainable aviation fuel: 9,615 L 	<ul style="list-style-type: none"> • Electricity saved through a sound energy management system: 15,800 kWh • Carbon emission reductions achieved through various carbon reduction measures: 58,464 tons CO₂e • Waste reduction achieved through improved waste management: 465,283 kg • Water saved through continuous water management: 4,149 tons • Elevator power recycled with power regeneration system: 889 kWh • Power saved in 2021: 127,000 kWh • Annual carbon reduction: 24 tons CO₂e 	<ul style="list-style-type: none"> • 2-4 Environment (P.91)
Social and Relationship	<ul style="list-style-type: none"> • Number of charitable activities: 5 • Number of beneficiaries: 9,844 • Number of community activities: 26 • Number of participants: 1,403 • Number of sponsorships: 13 • Result of brand promotion: TWD 0.4 million • Passenger transport customer satisfaction rate: 90.7 • Number of passenger transport customer complaints: 387 • Freight customer satisfaction rate: 88.3 • Number of cargo customer complaints: 1 • Number of industry-academia partnerships: 2 • Number of industry-academia partnership projects: 1 • Number of participants: 2 • Coverage of sustainable supply chain management: 71.05% • Number / proportion of suppliers under sustainability audit: 78.05% 	<ul style="list-style-type: none"> • CAL makes good use of its resources and takes real actions. We comply with the disease prevention regulations and actively participate in charity activities to promote equal opportunities for the disadvantaged groups, including the elderly, organizations for the disadvantaged, and education of children in remote rural areas. We are committed to achieve the goal of balanced social development • CAL understands the importance of education. During the pandemic, we continued to support and enhance the education and diversified growth of students in remote rural areas, and we invited our employees to organize activities such as shoe donations and charity sales of masks to create a positive cycle of kindness in the society • As the COVID-19 pandemic continued in 2021, we continued to use our assets to help transport medical supplies, including masks, ear thermometers, and negative pressure rooms. We also continued to support tourism in Taiwan and sponsored athletes to increase the international visibility of local brands • In 2021, there was a series of outbreaks in Taiwan. The Company created publications for "Stay Safe" and continued to promote the CAL brand during the COVID-19 pandemic. CAL's cargo services were ranked among the top five in the world and it became the only airline company in Taiwan with CEIV Pharma Cold Chain certification. The post on Facebook in March 2021 states "We are ready!" to promote CAL's professional capacity for cold chain operations and disease prevention with the world. In June 2021, we produced records of the 777F fleet on its mission for transporting Moderna vaccines as a symbol of friendly relations between the United States and Taiwan. The materials were later provided to the media and CAL's social media platforms for promotion • Compared to 2020, the overall passenger satisfaction rate increased by 2.1 points • The pandemic has affected the balance of supply and demand in the air cargo market as well as the prices and cargo services. Customers' satisfaction with cargo services dropped slightly due to the changes in prices and cargo services • Cargo services in various stations have been affected due to the impact of the pandemic on manpower resources and we could not meet customer expectations • The purpose of industry-academia partnerships was to develop national aviation professionals • The coverage of sustainable supply chain management increase 4.51% in 2021 compared to 2020 • The number / proportion of suppliers under sustainability audit increase 51.89% in 2021 compared to 2020 	<ul style="list-style-type: none"> • 2-1 Trust (P.42) • 2-2 Human Resources (P.66) • 2-3 Cooperation (P.84) • 2-5 Society (P.116)



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

1-3-2 True Value of China Airlines

In order to embrace mutual prosperity along with our stakeholders and endeavoring to create sustainable value for all stakeholders, CAL has integrated six forms of capital (financial, natural, manufactured, intellectual, human, and social) to its corporate vision and strategy, introducing the concepts of true value to monetize the environmental and of social externality's costs and benefits. This true value is viewed as an important reference point for corporate sustainability, and it helps all stakeholders understand the Company's sustainability performance.

Procedures for Assessing True Value

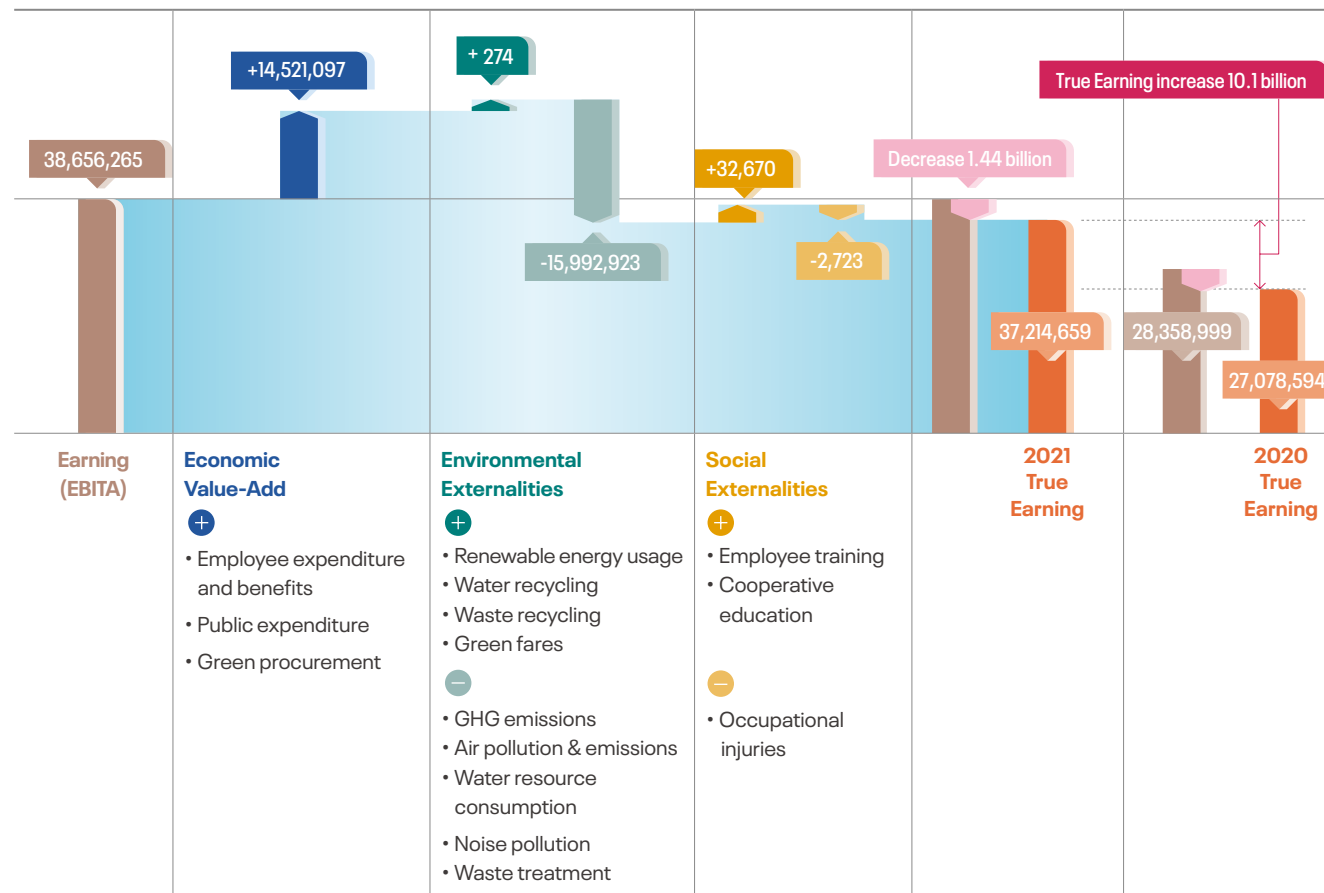


True Value

The evaluation results show that despite the continued impact of the COVID-19 pandemic, China Airlines will still achieve outstanding results in 2021, with traditional financial performance (EBITA) increasing by 36% to TWD 38.66 billion compared to 2020. The true earnings generated in economic, environmental, and social aspects in 2021 came to around TWD 37.21 billion, reflecting a decrease of TWD1.44 billion compared to the traditional financial performance (EBITA), but an increase of TWD 10.1 billion compared to the true earnings created in 2020. In line with the characteristics of the aviation industry, "Air pollution & emissions", "Greenhouse gas (GHG) emissions" and "Waste treatment" were the main sources of external costs. The negative benefits of Air pollution & emissions, GHG emissions, and Waste treatment were reduced by 6%, 1%, and 7% respectively in 2021 from 2020, showing CAL's active engagement in environmental sustainability initiatives such as "Air pollution & emissions", "GHG reduction" and "Waste treatment." In CAL's true earnings in 2021, environmental external costs totaled TWD 15.9 billion, and positive benefits created by additional economic value and social externalities totaled TWD 14.6 billion.

True Value of China Airlines

(Unit: TWD thousand)



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

1-4

Materiality Analysis and Stakeholder Engagement

1-4-1 Analysis of Business Environment in the Aviation Industry

The aviation industry connects people and logistics across the globe, and the growth and prosperity of the global economy is closely associated with the development of the aviation industry. According to a report released by the International Air Transport Association (IATA) in October 2021, the global civil aviation industry continued to be affected by the COVID-19 pandemic in 2021. The estimated number of passengers decreased to 2.277 billion and cargo tonnage increased to 66.2 million tons. 44.6 million people in the aviation industry face risks of unemployment but the

output rebounded by nearly US\$103 billion. The total loss is estimated to be US\$51.8 billion, and passenger volume could only return to pre-pandemic levels until after 2024. This shows that air transport promotes the development of society and the economy, and vice versa. CAL has routinely adjusted its Sustainability Strategy by reviewing the business environment of the aviation industry, as well as undertaking stakeholder engagement and materiality analysis to strengthen its long-term development.

Global Airline Industry	2020	2021 Forecast	2021 Compared to 2020	
Production Value (US\$100mn)	3,840	4,870	+1,030	+26.5%
Contribution to Global GDP (%)	0.4%	0.5%	+0.1ppt	
Direct Job Opportunities (10,000 persons)	1,136	902	-234	-20.6%
Indirect Job Opportunities (10,000 persons)	7,634	3,478	-4,156	-54.4%
Job Opportunities in Aviation (10,000 persons)	8,770	4,380	-4,390	-50.1%
Passengers (100 million persons)	18.07	22.77	+4.7	+26.0%
RPK (1,000bn km)	2.965	3.498	+0.533	+18.0%
Passenger Revenue (US\$100mn)	1,890	2,270	+380	+20.1%
Freight Ton (10,000 ton)	5,610	6,620	+1,010	+18.0%
FRTK (100mn km)	2,320	2,740	+420	+18.2%
Cargo Revenue (US\$100mn)	1,288	1,750	+462	+35.9%
After-tax Earnings (US\$100mn)	-1,377	-518	+859	+62.4%

Source: IATA, Air Transport Action Group, ATAG x IATA.

Business Opportunities

Focusing on Air Cargo Opportunities

As the COVID-19 spreads, the demand for vaccines, e-commerce, stay-at-home economy, cold chain, components, 5G, electric vehicles, disease prevention supplies, machinery, semiconductors, precision instruments, and remote applications, and the surge in consumer demand after lockdown measures were eased have maintained strong demand for cargo services. The delays in the maritime transport, shortage of ships, containers, workers, and trucks, port congestion, and other conditions have not been alleviated. With an increased gap between supply and demand, the transfer effect will continue despite the higher cost of air transport and urgent orders will be reassigned to air transport. In response to upcoming market changes, airlines are actively strengthening their cargo operations. In addition to repurposing passenger aircrafts for cargo transport, domestic airlines are changing some passenger aircraft orders to 777F cargo aircrafts. CAL already has a large 747F cargo fleet with 18 aircrafts, and is going to bring in another three 777F cargo aircrafts to increase its share of the cargo market.



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 **Materiality Analysis and Stakeholder Engagement**
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Business Strategies During the Pandemic

International passenger transport volume in 2021 fell by 75.5% compared to pre-pandemic levels. Due to the impact of the Omicron variant and strict border control measures, the decrease in Asia Pacific reached 93.2% and passenger flights are mostly used to support cargo transport. The pandemic has triggered a large wave of bankruptcies in the airline industry and companies in Asia Pacific have borne the brunt of the impact with nearly 26.7 million people facing risks of unemployment. Many airlines are trying to survive by reducing shifts, cutting pay, and laying off employees. Operators with poor financial conditions face risks of suspension of operations, filing for bankruptcy, or closure. During the pandemic, operators focused on disease prevention, creating new sources of revenue, and cost reduction. The industry continued to focus on cargo services as the main business and passenger transport as an added service. They tried their best to survive in an adverse business environment by running the "side business". In response to the slow recovery in passenger services, CAL will continue to rely on profits from cargo services to make up for losses in passenger services. Most operators continued to face losses in 2021 but CAL was one of the few operators in the world that turned a profit due to its long-term development of the cargo market, risk diversification, and flexibility in adjusting tariff strategies and cabin allocation in response to market changes. CAL will also cautiously develop the passenger market and adjust flights flexibly depending on the development of the pandemic, disease prevention policies, and market demand to prepare for the recovery of tourist travel.

Taking Advantage of Geographic Location as a Hub

Taiwan is well situated as an air cargo hub in Asia Pacific. Cargo traffic through the Taoyuan International Airport over the last 10 years shows that on average a total of 2.12 million tons of cargo go through the airport every year. In particular, the 10-year high appeared in 2018 at 2.32 million tons. In 2020, the cargo volume at Taoyuan International Airport reached an all-time high of 2.342 million tons. It rose in the international air cargo volume to 4th in the world (trailing only Hong Kong, Pudong, and Incheon International Airports) with its best performance in history. Its total air cargo volume also ranked 7th in the world.

The industry benefited from sound pandemic control measures in Taiwan, growth in exports of high-tech industries, demand shifted from maritime transport, e-commerce, demand from remote applications, and a national carrier fleet with a dense flight network. In 2021, the total annual cargo volume of Taoyuan International Airport reached a record high of 2.812 million tons, an annual increase of 20% and a record high. We must continue to concentrate our resources on Taoyuan International Airport (prioritizing cargo over passenger services) to consolidate Taiwan's position as an air cargo hub and its competitiveness.

Fleet Renewal for Enhanced Operational Efficiency

CAL continues to complete sustainability-oriented fleet renewal. For cargo aircrafts, three 777F cargo aircrafts were brought in late 2021 as planned, and CAL purchased four additional 777F cargo aircrafts in early 2022. According to the passenger fleet renewal plan, CAL started introducing A321neo passenger aircrafts into the fleet to replace Boeing 737-800 passenger aircrafts in late 2021. CAL is also considering introducing new regional wide-body passenger aircrafts to replace the A330-300 and 747-400 fleet. Furthermore, to provide better in-flight services and satisfy the demand for consistent travel products and to follow the direction of "less contact and going virtual" for in-flight entertainment in the post-pandemic era, CAL is campaigning for portable in-flight wireless streaming entertainment upgrade be installed in 737-800 cabins. CAL expects to start allowing travelers to use "their own mobile smart devices" onboard to connect to the in-flight system and enjoy in-flight entertainment in late 2021. The A321neo narrow-body passenger aircrafts introduced in late November 2021 is part of a new fleet that focuses on providing zero-contact services, high-standard pandemic prevention, upgraded flatbed seats for business class, the latest personal entertainment system, the largest screens, high-speed in-flight Wi-Fi services, and free text message services. With spacious and comfortable cabin design, a cargo hold system with extra capacity and efficiency, and fuel efficiency, the A321neo will serve as the main aircraft type for CAL's regional flights. It will provide passengers with more exciting, safer, and more comfortable journeys.

Business Risks

Pandemic Continues and Slow Recovery in the Global Passenger Markets

According to IATA estimates, the continuation of the COVID-19 pandemic will cause a total loss of US\$182.6 billion for airline companies across the world from 2020 to 2022 (2020: -US\$110.8 billion; 2021: -US\$53.8 billion; 2022: -18 billion). The global passenger transport volume will only recover to pre-pandemic levels after 2024. According to the forecast, the revenue passenger kilometer (RPK) for 2021 increased by 18.0% compared to the previous year (down by 59.7% compared to 2019) and the passenger revenue increased by 20.1% (down by 62.6% compared to 2019) while freight revenue ton kilometers (FRTKs) increased by 18.2% (up by 7.9% compared to 2019) and cargo revenue rose by 35.9% (up by 73.6% compared to 2019) in the same year. Although countries around the world continue to increase coverage of COVID-19 vaccines, the recovery of airline passenger volume remains challenging due to the impact of new variants of the virus. The IATA estimates that the revenue passenger kilometer (RPK) will increase by 51.0% in 2022 (down 39.0% compared to 2019) and passenger revenue will increase by 66.5% (down 37.7% compared to 2019) while cargo revenue ton kilometers (FRTK) will increase by 4.9% (up 13.2% compared to 2019) and cargo revenue will decrease by 3.5% (up 67.6% compared to 2019). Even with the strong performance of air cargo services during the pandemic, cargo revenue for most operators cannot compensate for the significant decline in passenger revenue. The continued losses coupled with the slow recovery of international passenger traffic will create risks of bankruptcy and closure for operators.

A Different Airline Industry in the New Post-pandemic Norm

Increased costs of fighting the virus means smaller profit margins. Hence, the airline industry will have to face structural changes. Before the pandemic, "business travelers" and "transfer opportunities" were the target markets for traditional airlines. The pandemic has had an impact on economics and trade, the employment market, and consumer confidence. Many companies are adopting a remote work model. Nearly



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

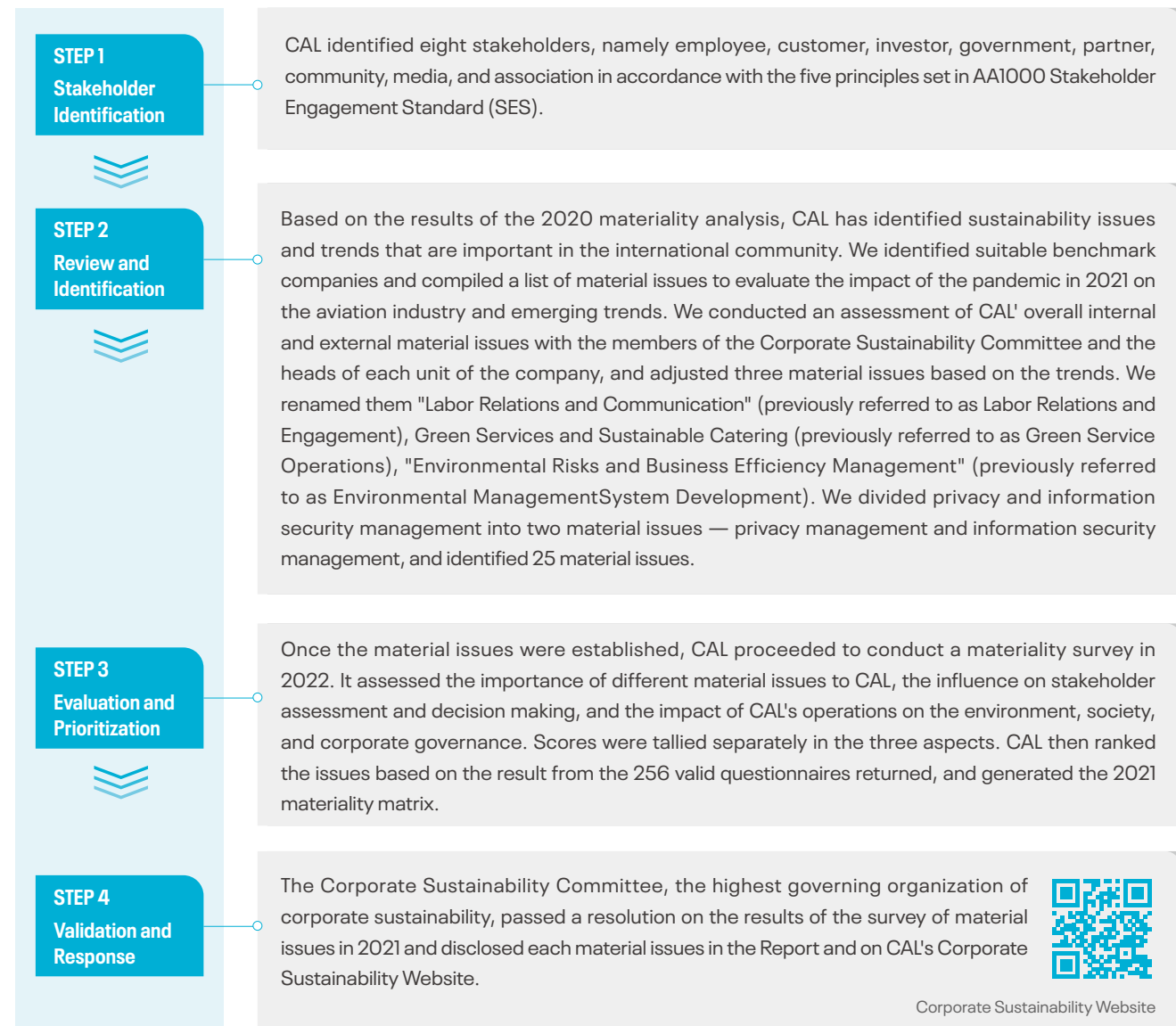
78% of companies have canceled or postponed international business travel and replaced 40% to 60% of the meetings with video conferencing. 84% of the companies reduced travel expenditures by 20% to 40%. As disposable income falls, both business travelers and leisure travelers will re-evaluate whether flying is still essential. The Global Business Travel Association (GBTA) estimates that business travel expenditures in 2021 fell by 41.1% compared to pre-pandemic levels and will not recover to pre-pandemic levels before 2025. Meanwhile, airlines face challenges in the form of cost reduction, demand for working capital, allocation of idle passenger capacity, air traffic rights, slot time, crew training, and aircraft airworthiness.

Passenger Aircrafts Mothballed due to Oversupply Caused by the Pandemic

International passenger flight demand has decreased significantly due to the COVID-19 pandemic. Airline companies have suspended flights, and mothballed or retired aircrafts with high fuel consumption ahead of schedule. According to the consulting firm Seabury, as of September 2021, 1,600 wide-body passenger aircrafts remain suspended and the average age of the aircrafts were 6 years for 300 aircrafts and 15 years for 1,269 aircrafts. They included nearly 400 wide-body four-engine passenger aircrafts such as the Boeing 747 and Airbus A380 and A340. Due to the operating costs and fuel efficiency, it might be difficult for them to ever fly again. Airline companies must also face the risks of idle capacity, impairment of fleet assets, and fundraising.

1-4-2 Materiality Analysis GRI 102-46, 102-47, 103-1

CAL identified eight stakeholders in accordance with the five major principles defined in the AA1000 Stakeholder Engagement Standard (SES), then established the following procedures for materiality analysis based on the reporting principles of the GRI Standards (stakeholder inclusiveness, sustainability context, materiality and completeness) to identify material issues of stakeholders' primary concern. Different channels of communication are also established to respond to stakeholders' needs and expectations.





Contents

Preface

1 Sustainability Management

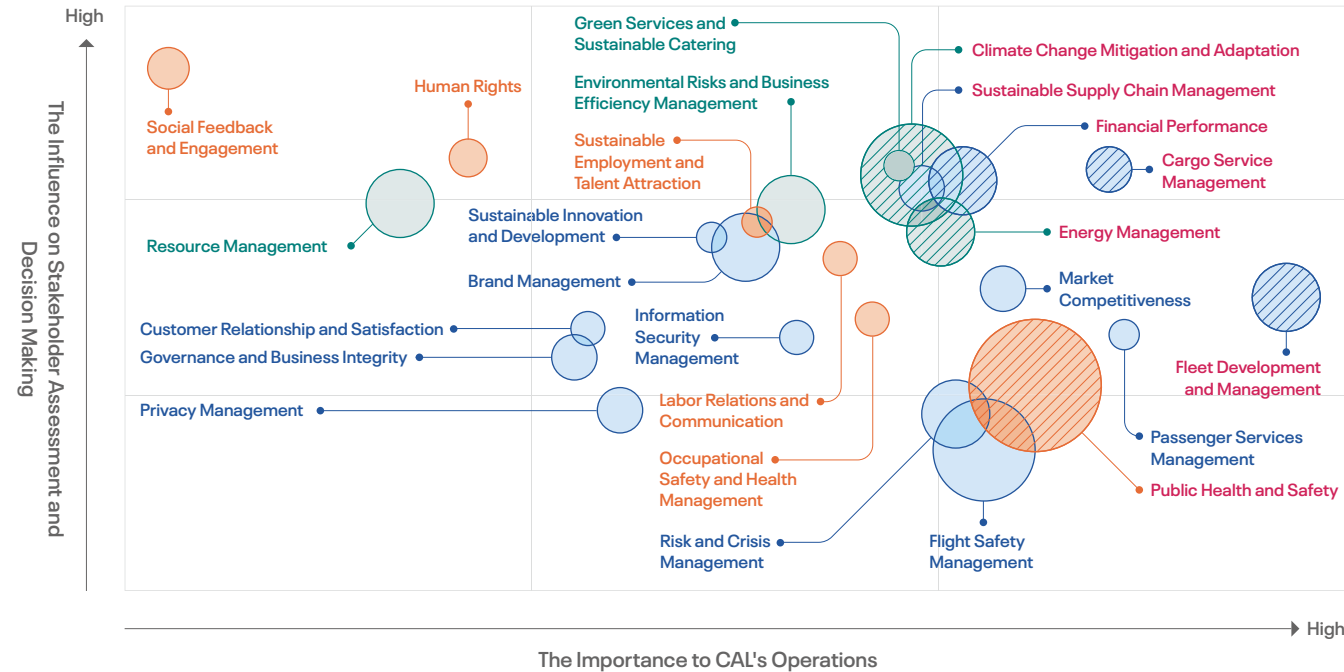
- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

2021 China Airlines Materiality Matrix



- Environmental
- Social
- Governance
- The size of the circle represents the degree of impact of CAL's value chain on the environment, society, and corporate governance
- ▨ Key Issue

Note: CAL identified, assessed, and adjusted the rankings of material issues in terms of the three aspects according to the GRI Standards. On the x-axis was the importance to CAL's operations; on the y-axis was the influence on stakeholder assessment and decision making; and on the z-axis was the degree of impact of CAL's value chain on the environment, society, and corporate governance. Following the rankings in the materiality analysis, CAL listed 7 key issues, 13 important issues, and 5 issues of concern. The 25 material issues were put on the materiality matrix with key issues labeled in red.

Importance and Changes in Material Issues for 2021

Rankings of Material Issues	Material Issues	Category	Changes in the Ranking of the Level of Concern	Importance to CAL
1	● Climate Change Mitigation and Adaptation	★	▲	CAL fully fulfills our environmental protection responsibilities and obligations by actively participating in and responding to environmental protection initiatives and dialog at home and abroad. To attain the goal of net zero carbon emissions by 2050, CAL implements continuous improvement to constantly enhance climate risk and opportunity identification, quantification, and management. We are committed to enhancing corporate carbon management and our resilience and adaptation to climate change
2	● Energy Management	★	▲	We pursue the goal of achieving net zero emissions by 2050 and introduce innovative concepts to continue to enhance KPIs for low-carbon operations. We are committed to low-carbon operations by focusing on energy conservation and energy efficiency management
3	● Financial Performance	★	▲	The pursuit of profit through operating and financial performance is the foundation of our stable operations
4	● Public Health and Safety	★	▼	As COVID-19 spread across the globe, public health and safety measures against the virus before, during, and after transportation are attracting a lot of attention. All passengers, ground crew, air crew and other service personnel must be equipped with adequate protective equipment and measures and correct knowledge of the virus in order to work together to keep the virus at bay



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 [Materiality Analysis and Stakeholder Engagement](#)
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Rankings of Material Issues	Material Issues	Category	Changes in the Ranking of the Level of Concern	Importance to CAL
5	● Cargo Service Management	★	▲	We optimize cargo services through price differentiation and special cargo delivery, in order to provide quality cargo services for customers
6	● Fleet Development and Management	★	▲	CAL continuously strengthens fleet quality and introduces environmentally-friendly models, to build an efficient worldwide air transport network and provide more comfortable and safer travel experiences for passengers
7	● Sustainable Supply Chain Management	★	▲	CAL strengthens sustainable value for the overall supply chain by managing our upstream and downstream suppliers
8	● Environmental Risks and Business Efficiency Management	⚠	▲	We use a lifecycle model to monitor every process in our organization, construct a complete corporate environmental management system, and improve our environmental governance policy and quality of risk management. We are also committed to improving operational efficiency
9	● Green Services and Sustainable Catering	⚠	▲	In response to the rising awareness of green consumption, we promote green consumption and implement green and local procurement. We introduce innovative ideas to optimize our services and operations to reduce the amount of product and food waste and its associated disposal costs, and we remain committed to increasing the environmental friendliness of our services
10	● Brand Management	⚠	▼	We use brand management to incorporate sustainable development concepts and continue our operations in ESG to increase customers' brand awareness, which leads to stakeholders' identification with a brand, trust, loyalty, and ultimately a driver of consumer decision making that form a positive cycle
11	● Resource Management	⚠	▲	"Cost effective, improved efficiency, and zero waste" is followed as a rule. We monitor the operational environment and processes at all stations at all times in order to keep optimizing the corporate environment and energy management and ensure effective allocation and utilization of resources
12	● Social Feedback and Engagement	⚠	▲	CAL gives back to society, to create social value as part of our commitment to corporate sustainability
13	● Market Competitiveness	⚠	▼	Faced with an ever-changing aviation industry and the emergence of new airlines, CAL optimizes our route network, develops potential markets and customers, and makes good use of group resources to stay competitive
14	● Sustainable Innovation and Development	⚠	▲	We continue to innovate in products and services, and provide value creation capabilities to meet customer demand for technological services
15	● Labor Relations and Communication	⚠	▼	Maintaining harmonious labor-management relations is a priority for Company. CAL is committed to strengthening diversified communication with employees and creating an equal and friendly work environment
16	● Sustainable Employment and Talent Attraction	⚠	▼	CAL establishes a sound training system and structure to attract and train aviation professionals; we value the development of employee competency in order to promote sustainable employment
17	● Flight Safety Management	⚠	▼	Zero flight safety accidents form the basis for creating sustainable customer value



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 [Materiality Analysis and Stakeholder Engagement](#)
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Rankings of Material Issues	Material Issues	Category	Changes in the Ranking of the Level of Concern	Importance to CAL
18	● Risk and Crisis Management	⚠️	▼	Risk management plays a key role in Company's sustainable development. Faced with ever-increasing categories of risk, CAL is committed to reducing risks and improving our resilience to crises
19	● Occupational Safety and Health Management	⚠️	▼	CAL aims to provide a safe and healthy workplace, promote a variety of health promotion activities, and reduce both occupational accident rates and construction risks to improve employee cohesion
20	● Human Rights	⚠️	▼	We ensure the completeness of our human rights policies, in order to comply with international trends in human rights and to protect human rights
21	● Passenger Services Management	🔍	▼	CAL aims to provide quality products and services, to meet passengers' needs and become the preferred airlines in Taiwan
22	● Information Security Management	🔍	▼	With the popularization of information systems, and in order to comply with domestic and foreign information security laws and regulations, CAL continuously improves our information security governance system and protection capabilities, and prioritizes information security control in daily business operations
23	● Governance and Business Integrity	🔍	▼	A robust corporate governance framework and sound ethical corporate management are fundamental to corporate sustainability
24	● Customer Relationship and Satisfaction	🔍	▼	Customer trust and satisfaction are the most important driving force for CAL's continued growth. Providing professional service is our commitment to customers
25	● Privacy Management	🔍	▼	The protection of personal data and customer privacy is closely tied to our reputation and customer trust

● Environmental ● Social ● Governance ★ Key Issues ⚠️ Important Issues 🔍 Issues of Concern ▲ Rise ▼ Decline

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 [Materiality Analysis and Stakeholder Engagement](#)
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Material Issues Corresponded to GRI Standards

Material Issues (Sorted by the level of concern for each ESG aspects)	Corresponding to GRI Topic-Specific Standards	Boundary						Corresponding Chapter / Section
		Internal (Note)			External			
		CAL	Mandarin Airlines	Tigerair Taiwan	Government	Customers	Partner	
● Financial Performance	GRI 201 Economic Performance	●	●	●	○	○	▲	3-2 Operational Achievements ESG Data and Appendix - Financial Performance
● Cargo Service Management	-	●			○	○	○	2-1 Trust
● Fleet Development and Management	GRI 102 General Disclosures: 1. Organizational Profile 2. Strategy	●			○			Preface Business Overview
● Sustainable Supply Chain Management	GRI 204 Procurement Practices GRI 308 Supplier Environmental Assessment GRI 414 Supplier Social	●			○		▲	2-3 Cooperation
● Brand Management	GRI 102 General Disclosures: 1. Organizational Profile	●			○	○	○	1-1 Sustainability Vision and Strategies 2-1 Trust 2-4 Environment 2-5 Society
● Market Competitiveness	-	●			○	○	▲	Preface Business Overview 3-2 Operational Achievements
● Sustainable Innovation and Development	-	●			○	○	○	2-1 Trust
● Flight Safety Management	GRI 404 Training and Education	●	●	●	○	○		2-1 Trust
● Risk and Crisis Management	GRI 102 General Disclosures: 1. Organizational Profile 2. Strategy	●			○			Preface About the Report Preface Letter from Management 3-4 Risk Management
● Passenger Services Management	-	●			○	○	○	2-1 Trust
● Information Security Management	GRI 418 Customer Privacy	●			●	●		2-1-4 Information Security Management



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Material Issues (Sorted by the level of concern for each ESG aspects)	Corresponding to GRI Topic-Specific Standards	Boundary						Corresponding Chapter / Section
		Internal (Note)			External			
		CAL	Mandarin Airlines	Tigerair Taiwan	Government	Customers	Partner	
● Governance and Business Integrity	GRI 102 General Disclosures: 3. Ethics and integrity 4. Governance GRI 205 Anti-corruption GRI 206 Anti-competitive Behavior	●			●	○	▲	3-1 Governance Framework 3-3 Regulatory Compliance ESG Data and Appendix - GRI Content Index
	GRI 415 Public Policy	●			●			
● Customer Relationship and Satisfaction	GRI 102 General Disclosures	●			●	○	▲	2-1-2 Passenger Service ESG Data and Appendix - Customer Satisfaction Table in 2021
● Privacy Management	GRI 418 Customer Privacy	●			●	●		2-1-5 Privacy Management
● Public Health and Safety	GRI 403 Occupational Health and Safety	●	●	●	○	●	○	Preface COVID-19 Special Column
● Social Feedback and Engagement	GRI 201 Economic Performance	●	●	●	○	●		2-5 Society
● Labor Relations and Communication	GRI 401 Employment GRI 402 Labor / Management Relations	●	●	●	○	○		2-2 Human Resources
	GRI 407 Freedom of Association and Collective Bargaining	●	●		○			2-3 Cooperation
● Sustainable Employment and Talent Attraction	GRI 202 Market Presence	●	●	●		●		2-2 Human Resources
	GRI 404 Training and Education	●	●	●		○		
	GRI 405 Diversity and Equal Opportunity	●	●	●				
	GRI 406 Non-discrimination GRI 408 Child Labor GRI 409 Forced or Compulsory Labor	●	●	●	●			2-2 Human Resources ESG Data and Appendix - GRI Content Index



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Material Issues (Sorted by the level of concern for each ESG aspects)	Corresponding to GRI Topic-Specific Standards	Boundary						Corresponding Chapter / Section
		Internal (Note)			External			
		CAL	Mandarin Airlines	Tigerair Taiwan	Government	Customers	Partner	
● Occupational Safety and Health Management	GRI 403 Occupational Health and Safety	●	●	●	○			2-2 Human Resources
● Human Rights	GRI 412 Human Rights Assessment	●						2-2 Human Resources
● Climate Change Mitigation and Adaptation	GRI 305 Emissions	●	●	●	○	○	▲	2-4 Environment ESG Data and Appendix - GRI Content Index
● Energy Management	GRI 302 Energy	●			●	○	▲	
● Environmental Risks and Business Efficiency Management	GRI 307 Environmental Compliance	●	●	●	●	○	▲	
● Green Services and Sustainable Catering	-	●	●		○	○	▲	
● Resource Management	GRI 306 Waste	●			●	○	▲	
	GRI 303 Water and Effluents	●			●	○	▲	
	GRI 301 Materials	●			●	○		

● Environmental ● Social ● Governance ● Key Issue ● Direct Influence ○ Indirect Influence ▲ Business Influence

Note: The boundary of the Report mainly focuses on CAL. Only some related performance data of Mandarin Airlines and Tigerair Taiwan are disclosed.

1-4-3 Stakeholder Engagement GRI 102-40, 102-42, 102-43, 102-44

CAL identified eight major stakeholders including Employees, customers, investors, government, partners (suppliers and contractors), community, media and associations (including aviation organizations). To understand our stakeholders' needs and expectations, we have established relevant, unimpeded communication channels and platforms based on stakeholders' attributes and needs. We also report to the Board of Directors in the first quarter of each year, to disclose details of communications with stakeholders, including key points and frequency of communication.

On demand	Daily	Yearly
As needed	Monthly	Once every year
As needed every month	Four to six times a year	Twice every year
Regularly	At least once every 6 months	Once every three years

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 [Materiality Analysis and Stakeholder Engagement](#)
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Employees









We view our employees as our most valuable assets. CAL has improved and optimized working conditions and the working environment to establish a safe and growing workplace. CAL is dedicated to maintaining harmonious labor-management relations through unimpeded communication channels, thus creating a win-win situation

Material Issues

- Social Feedback and Engagement
- Sustainable Innovation and Development
- Sustainable Supply Chain Management
- Human Rights

Communication Channels and Frequency

- | | |
|--|---|
|  4-6 1. Labor-management meetings |  4. Employee feedback website |
|  2. Labor Unions |  5. China Airlines newsletter |
|  3. Employee suggestion boxes |  6. China Airlines Retirees Portal |

Corresponding Chapter Section

[2-2 Human Resources](#) | [2-4 Environment](#)

Key Points of Communication

- Recruitment and Retention
- Employee development, rights and interests, healthy and safe workplace

Communication Results

- Employee satisfaction surveys are conducted every two years; the score in 2019 was 6.4 (the highest possible score was 10 points) Given COVID-19 is an extraordinary circumstance, the survey is postponed to 2023 to avoid distortion
- The employees' environmental protection satisfaction survey is conducted once every year and 93.6% of the employees expressed satisfaction with environmental management and education activities

Highlights of Communication Results

On December 16, 2021, CAL and the China Airlines Employees Union signed a collective bargaining agreement which was the 6th agreement. They reached a consensus with 79 items and the agreement shall be valid for 3 years. Both parties shall maintain the existing labor conditions and benefits and will not be affected by the pandemic. They shall continue positive labor relations on the existing foundations. Both parties demonstrated their good will in the negotiations and worked together to take care of all employees. After CAL concluded negotiations with the Pilots Union, they signed a collective bargaining agreement on December 29, 2021

Customers



Customers are our main source of revenue. CAL listens to customers and protects their rights and interests in order to meet customers' expectations








Material Issues

- Financial Performance
- Social Feedback and Engagement
- Resource Management
- Climate Change Mitigation and Adaptation



COVID-19 Service Information

Communication Channels and Frequency

- | | |
|---|--|
|  1. Customer satisfaction survey |  5. CAL's website, CSR website, Facebook / Instagram, e-mail, and text messages |
|  1/Y 2. Global business meetings |  6. Customer-service hotline |
|  2/Y 3. Taiwan business meetings |  7. Corporate customer visits |
|  4. Discussions with travel agencies | |

Society







Social support is the key to our success. As an economic entity in society, CAL continuously contributes to the economy while fulfilling our corporate social responsibilities

Material Issues

- Financial Performance
- Green Services and Sustainable Catering
- Human Rights
- Environmental Risks and Business Efficiency Management

Communication Channels and Frequency

- | | |
|---|---|
|  1. Charity events |  3. News releases |
|  2. Community activities |  4. Online mailbox |

Corresponding Chapter Section

[2-1 Trust](#) | [2-4 Environment](#)

Key Points of Communication

- Customer Relations Management
- Protecting customers' rights and interests: privacy, food safety, and in-flight drinking water quality
- Providing an information integration platform for flight changes during the pandemic

Communication Results

- Passenger satisfaction rate was 90.7%
- Cargo satisfaction rate was 88.3%
- Satisfaction rate of maintenance factories was 8.24 (score out of 10)

Highlights of Communication Results

We set up the "COVID-19 Service Information" section and the "Disease Prevention Section" on the corporate website to provide passengers with integrated information platform

Corresponding Chapter Section

[2-1 Trust](#) | [2-2 Human Resources](#) | [2-4 Environment](#) | [2-5 Society](#)

Key Points of Communication

- Support for social development
- Assumption of social responsibility
- Creating a Sustainable Society

Communication Results

A total of 138,565 individuals benefited in 2021

Highlights of Communication Results

[Responding to international relief efforts during the pandemic.](#)

The pandemic continued to pose grave threats in 2021 and CAL completed the transportation of masks, gloves, negative pressure isolation rooms, and other medical supplies. It transported more than 350 tons of COVID-19 vaccines which totaled more than 75 million doses

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Investors



Regardless of amount, all investors are contributors to CAL. CAL treats all investors equally, and makes the information available to each investor as consistent as possible

Material Issues

- Public Health and Safety
- Labor Relations and Communication
- Climate Change Mitigation and Adaptation
- Fleet Development and Management

Communication Channels and Frequency

- | | |
|---------------------------------|---------------|
| 1. Shareholders meeting | 3. Road shows |
| 2. Shareholders hotline/mailbox | 4. Interviews |

Corresponding Chapter Section

[3-1 Governance Framework](#) | [2-1 Trust](#) | [2-4 Environment](#)

Key Points of Communication

- Operating results
- Flight safety and passenger transport
- Risk management model

Communication Results

Continue to announce and respond with operation-related results according to laws, regulations, and investors' demand

Highlights of Communication Results

- CAL held the shareholders meeting on August 12, 2021. During the meeting, shareholders raised questions regarding the ratio of Independent Directors of the Company and plans for employees' personal health. All questions were answered and clarified by the chairman or designated staff. Please refer to the [2021 shareholders meeting minutes for details](#)
- CAL was invited to road shows hosted by securities dealers on April 14 and November 16 in 2021. CAL presented an overview of the Company's business and the impact of COVID-19 and the Company's countermeasures. Please refer to [the first](#) and [the second road show](#) presentations in 2021 for details
- Taiwan Ratings revised CAL's outlook to "stable". The global aviation industry faced severe challenges during the pandemic and the credit ratings of most airline companies were downgraded. However, CAL has maintained rapid growth in cargo services and stable prospects and Taiwan Ratings revised CAL's outlook from "negative" to "stable" in October 2021 and confirmed CAL's long-term and short-term credit ratings as "twBBB+/twA-2"

Media



Media reports and comments on CAL affect CAL's reputation and image

Material Issues

- Green Services and Sustainable Catering
- Human Rights
- Social Feedback and Engagement
- Environmental Risks and Business Efficiency Management

Communication Channels and Frequency

- | | |
|------------------|---|
| 1. News releases | 3. Press conferences |
| 2. Interviews | 4. Active communication of industry information |

Corresponding Chapter Section

[2-1 Trust](#) | [2-2 Human Resources](#) | [2-4 Environment](#)

Key Points of Communication

Collection of issues of stakeholders' concern and promotion of transparent communication

Communication Results

Released 95 announcements (including press releases, statements, revenue reports, and news announcements) in 2021

Highlights of Communication Results

CAL closely monitored developments caused by the pandemic and actively explained the Company's disease prevention policies and response actions on multiple occasions to provide care to crew members and use correct information for balanced media coverage. We set up the "Disease Prevention Section" on the official website to provide passengers with information on the pandemic in different countries and promote zero-contact services for safe passenger travel. Cargo services became the mainstay of the Company's operations. CAL's cargo services completed the numerous deliveries of vaccines and medical supplies during the pandemic and made professional contributions for disease prevention. CAL and the China Airlines Employees Union signed a collective bargaining agreement to create benefits for labor and management, and help them work together for sustainable development in response to the challenges for the aviation industry in the post-pandemic world

Partners (Suppliers and Contractors)



Service provided by suppliers and contractors is one of the key factors for CAL to provide services that satisfy customers

Material Issues

- Human Rights
- Climate Change Mitigation and Adaptation
- Sustainable Employment and Talent Attraction
- Green Services and Sustainable Catering

Communication Channels and Frequency

- | | |
|--------------------------|---------------------|
| 1. Telephone | 4. Business visits |
| 2. e-mail | 5. Site inspections |
| 3. Coordination meetings | |

Corresponding Chapter Section

[2-1 Trust](#) | [2-3 Cooperation](#) | [2-4 Environment](#)

Key Points of Communication

Sustainable Supply Chain Management

Communication Results

The score of sustainability risk surveys averaged 88.17 in 2021, higher than CAL's target, and a general supplier meeting was held at the end of 2021

In 2021, CAL convened a meeting to communicate the Company's value chain environmental protection operations

Highlights of Communication Results

A general supplier meeting was held in December 2021. A total of 40 representatives of 34 suppliers attended the event. It served to raise sustainability awareness and knowledge among suppliers, and helped suppliers gain a better standing of CAL's sustainability philosophy



A General Supplier Meeting Was Held in December 2021

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Government



CAL is Taiwan's largest civilian airline. Supervised by the Ministry of Transportation and Communications. The China Aviation Development Foundation is the largest shareholder of CAL and exerts influence on CAL's operations

Material Issues

- Fleet Development and Management
- Cargo Service Management
- Sustainable Supply Chain Management
- Passenger Services Management

Communication Channels and Frequency

- | | | |
|---|-----------|---|
| 1. Missives | 2. Visits | 5. Organization of or participation in business seminars and audits |
| 3. Participation in projects | | 6. Participation in initiatives |
| 4. Participation in public hearings, seminars, and negotiation forums | | 7. Audits |

Corresponding Chapter Section

[3-1 Governance Framework](#) | [2-1 Trust](#) | [2-4 Environment](#)

Key Points of Communication

- Communication and implementation of relevant laws and regulations
- Sharing of important industry information
- Supporting campaigns for business development, establishment, and research activities in civil aviation

Communication Results

- Selected as the top 6%-20% of the excellent corporation award in the Seventh Corporate Governance Review
- CAL was selected for the Taiwan High Compensation 100 Index and the Taiwan Employment Creation 99 Index
- Discussed flight safety issues and exchanged information in through seminars to improve flight safety
- Discussed and deliberated environmental sustainability issues on the industry and government communication platform

Highlights of Communication Results

- In 2021, CAL, CADF, and CAA of MOTC co-organized the Aviation Security Risk Management Seminar
- CAL attended three CAA meetings on security seed instructors, cybersecurity training, and re-training for flight safety inspectors
- CAL attended three CAA meetings on the global carbon market working group, carbon offsetting and reduction plan review and training
- CAL attended the "Task Force on Climate-Related Financial Disclosures (TCFD) Training Program" and the "Sustainable Development Roadmap" public hearing organized by the Financial Supervisory Commission and Taiwan Stock Exchange
- CAL attended the "Greenhouse Gas Reduction and Management Act / Climate Change Response Act" meeting between industries and the government and the "Voluntary Greenhouse Gas Reduction and Offsetting Program" organized by the EPA
- CAL received both carbon label and carbon reduction label from the EPA. CAL Group received the Excellence Award for Low-Carbon Products and two awards for green procurement in the private sector from Taoyuan City Government

Associations (including Aviation Organizations)



CAL participates in association, international organization, and aviation alliance meetings and seminars, to exchange opinions and get an early grasp on changes to aviation-related laws and regulations, thus ensuring compliance of our business activities

Material Issues

- Financial Performance
- Cargo Service Management
- Labor Relations and Communication
- Governance and Business Integrity

Corresponding Chapter Section

[2-1 Trust](#) | [2-4 Environment](#)

Communication Channels and Frequency

- | |
|---|
| 1. Participation in project meetings |
| 2. Participation in work seminars |
| 3. Organizing or participating in summits, executive summits, committees, and coordination meetings |
| 4. Participation in government-convened meetings |
| 5. Telephone, e-mail, and exchange platforms |

Key Points of Communication

- Collection of trends at home and abroad and promotion of business operations
- Coordination of business relationships and promotion of mutual benefits
- Improvement of flight safety through discussions on safety issues, information exchange, and sharing security management experience

Communication Results

In 2021, CAL participated in meetings and projects organized by international organizations and aviation alliances such as IATA, SkyTeam, AAPA, and CAA, including 48 professional seminars and conferences on environmental issues, to continue strengthening cooperation with airlines at home and abroad








Highlights of Communication Results

- CAL stayed in close contact with aviation alliances on flight safety and health topics during the COVID-19 pandemic in order to ensure effective safety management and health measures
- CAL communicated with TAA to request MOTC to extend airline relief programs and received positive support. The site usage fees, noise charges, land usage fees, property usage fees, maintenance hangar usage fees, and air traffic service charges for domestic civil aviation industries in the first half of 2022 were deferred
- CAL worked with member airlines within selected aviation organizations, such as AAPA and SkyTeam in reaching consensus on reducing monthly membership fees
- SkyTeam established the CSR Sustainability Advisory Group (AG) in 2021 and published its Pledge for Sustainability and the Sustainable Flight Challenge (TSFC). CAL has voiced its support for SkyTeam's sustainable development initiatives and participates in the TSFC
- CAL attended 5 meetings of the IATA Sustainability and Environment Advisory Council (SEAC) and AAPA Environmental Working Group (EWG) for discussions and formulation of strategies for issues such as the targets and action plans for net zero carbon emissions of the international aviation industry by 2050, climate change, SUP, sustainable aviation fuel (SAF), and waste management

1-4-4 Initiatives and Organizations GRI 102-12, 102-13

CAL actively participates in business development, corporate sustainability, environmental and other specialized initiatives and organizations in the airline industry. Despite the COVID-19 pandemic, CAL invested TWD 30.73 million to participate in initiatives (95.87% or TWD 29.47 million in business development for the airline industry and the other 4.13% or TWD 1.26 million in corporate sustainability, and environmental and other specialized initiatives) in 2021. The total amount invested fell by TWD 2.52 million compared to 2020. The decrease is primarily attributed to external organizations and associations reducing membership fees in response to the massive impact of COVID-19 on revenue in the airline industry.

External Initiatives

2017—2021	 <p>Buckingham Palace Declaration</p> <p>At the 73rd IATA Annual General Meeting in June 2017, CAL signed the Buckingham Palace Declaration against illegal wildlife trafficking. CAL has worked with 61 or more other airlines to stamp out the transport of illegal wildlife in conformity with the UN's SDGs.</p>	<p>Buckingham Palace Declaration</p> 
2016—2021	 <p>The Dow Jones Sustainability Indices (DJSI)</p> <p>Since 2015, CAL has taken the initiative to respond to the Dow Jones Sustainability Indices (DJSI) questionnaire, disclosing our management objectives, strategies and practices in terms of the environment, society, and economy/governance. In 2021, CAL was selected for the DJSI Emerging Markets for the sixth consecutive year and the only airline company to be selected in Taiwan. CAL also ranked second in the global aviation industry.</p>	
2012—2021	 <p>Pacific Greenhouse Gases Measurement (PGGM)</p> <p>Since 2012, the Company has participated in the PGGM by installing the In-service Aircraft for a Global Observing System (IAGOS) in its aircraft cabins to collect trans-Pacific high-altitude gas data for global warming and climate studies conducted by science agencies around the world. As of December 31, 2021, CAL has collected high-altitude gas data from 14,628 flights.</p>	
2018—2021	 <p>TCFD Climate-Related Financial Disclosures</p> <p>CAL became Taiwan's first airline to publicly sign and adopt the Task Force on Climate-Related Financial Disclosures (TCFD) in 2018. CAL works actively to make TCFD part of the company's management system. In 2019, CAL assisted in completing translation of TCFD to Traditional Chinese, and participated in several industry / government / academic campaigns to promote it. In January 2021, CAL went on to publish an independent TCFD. Results of management internalization are presented through press releases and social media.</p>	
2008—2021	 <p>Earth Hour</p> <p>CAL has supported the event since 2008 by working with the Group's partners, providing support through concrete actions, and urging the public to take notice of the impact of global warming and climate change through media outlets.</p>	
2012—2021	 <p>Carbon Disclosure Project (CDP)</p> <p>CAL is Taiwan's first service provider to independently review greenhouse gas emissions generated from its operations and respond to the CDP questionnaire. Since 2012, CAL has conducted greenhouse gas inventory training and surveys of greenhouse gas emissions for its affiliates on a regular basis and disclosed its climate governance, strategies, management of risks and opportunities, indicators and targets, greenhouse gas emissions, and reduction management and performance. CAL has been recognized as a benchmark enterprise. In the future, CAL will continue to review and improve carbon management strategies through participation in the CDP. Ranked Leadership in CDP Supplier Engagement Rating (SER) in 2021.</p>	

Memberships

IATA	Airline Development
<p>International Air Transport Association</p>  <p>Environment Committee (ENCOM), Cargo Committee, CSR Work Group, Carbon Offsetting and Reduction Scheme for International Aviation Work Group (CORSIA), Air Freight Carbon Footprint Work Group, and observer of the Industry Affairs Advisory Council (IAAC)</p> <p>CAL's Role and Participation</p> <p>CAL kept in close touch with IATA headquarters and IATA North Asia and participated in meetings, industry committees and task forces; and served as a member of Sustainability and Environment Advisory Council. It was also involved in environmental discussions relevant to international civil aviation, and supports research and studies of related environmental subjects.</p> <p>Contributions and Benefit</p> <ul style="list-style-type: none"> CAL helped the Executive Committee under IATA plan, supervised and implemented the policies and strategies for environmental management and sustainable development of the global aviation industry. CAL participated in the making of technical specifications of ICAO CORSIA and policies pertaining to sustainable aviation fuels. CAL also supported IATA's passage of its zero net emissions target for 2050 in the Annual General Meeting (AGM) of 2021, and supported related carbon reduction plans. CAL kept itself updated with progress of international carbon management mechanisms and sustainable aviation fuels, provided information for national legislation, and continued to implement industry training programs. 	

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 [Materiality Analysis and Stakeholder Engagement](#)
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 [Materiality Analysis and Stakeholder Engagement](#)
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

AAPA

Association of Asia Pacific Airlines

Founding Member



CAL's Role and Participation

As a founding member of the AAPA, CAL has endeavored to connect airlines in the Asia-Pacific region and speak for them.

Contributions and Benefit

- Participated in the ICAO CORSIA, encouraged members to support the IATA's plans for net-zero carbon emissions by 2050, encouraged the development and improved efficiency of sustainable aviation fuel, and paying close attention to quarantine regulations and passenger rights and interests in different countries.
- In 2021, AAPA continued to monitor environmental issues and convened several rounds of video conferences to obtain the opinions of members on the carbon reduction statement. It also worked with international aviation organizations to urge governments to adopt unified health measures against the coronavirus and prepare for the future reopening of the industries.

SkyTeam

SkyTeam

Alliance Board and Executive Board Member



CAL's Role and Participation

CAL became the fifteenth member of SkyTeam on September 28, 2011, and was the first airline in Taiwan that joined SkyTeam. To optimize services and markets in the aviation industry, CAL attends working meetings at all levels, as well as annual meetings held by the Executive Board and the Alliance Board on a regular basis.

Contributions and Benefit

- SkyTeam helps CAL consolidate and strengthen our global flight network and cooperation with other member airlines enables CAL to connect Taiwan and major destinations around the world.
- In response to traveler's expectation related to safety on air travel triggered by the COVID-19 pandemic in 2021, CAL launched a series of contactless passenger services to keep travel safe during the pandemic.
- CAL participated in the establishment of environmental protection and sustainability strategies and plans of the Alliance.

TAA

Taipei Airlines Association

Director



CAL's Role and Participation

CAL is one of the founding members of TAA. Established in March 1990, TAA acts as an advisor and coordinator which connects the government and the industry. CAL participates in annual general meetings, as well as director, supervisory board meetings. CAL also participate in regular activities organized by TAA and attends meetings with governments to protect the rights and interests of the aviation industry.

Contributions and Benefit

- Listed the airline industry's needs during the pandemic to urge TAA to lobby for more relief programs.
- Urged the CAA to increase the subsidies and budget for disease prevention operations in response to new variants of COVID-19.

FSFT

Flight Safety Foundation-Taiwan

Managing Director, Technical Regulation Committee - Convener, Educational Training Committee - Convener



CAL's Role and Participation

CAL serves as the managing director and the conveners of the FSFT's Technical Regulation and Educational Training Team, to participate in governance decision-making, establish government-industry-university-institute cooperation mechanism to promote international regulations studying, strategic research and engagement related to international aviation safety and environmental sustainability.

Contributions and Benefit

CAL is responsible to promote and establish mechanisms for collecting and studying laws and regulations, educational promotion related to international aviation safety and environmental sustainability, and to give advice on amendments or countermeasures for improving national legislation and aviation industry competitiveness.

TCCS

Taiwan Center for Corporate Sustainability

Advisory Director

Corporate Sustainability



CAL's Role and Participation

CAL acted as one of the advisory directors to participate in the training and operation of the Center for Corporate Sustainability. CAL served as the lecturer to communicate the Company's actions for sustainability from time to time based on the themes of the Center's meetings. CAL participated in a series of training courses on corporate sustainable competitiveness and seminars on the corporate sustainability report and related issues organized by the Center for Corporate Sustainability to improve its knowledge of industrial practice and latest trends.

Contributions and Benefit

The Advisory Council is the highest decision-making organization of the Center for Corporate Sustainability. Becoming a member and acting as a director of the Center for Corporate Sustainability allowed CAL to be aware of latest laws and regulations, policy review, technical regulations, and standards for sustainability and to have influence.

AAPT

Association of Atmosphere Protection in Taiwan

Director



CAL's Role and Participation

CAL participates in the decision-making of organizational management, and promote the strategic engagement of the government-industry-university-institute in response to the issues of global atmospheric protection and climate change.

Contributions and Benefit

CAL helped facilitate the communication between the industry, the government, and the academia about policies, laws, academic research, technology research and development, counseling, and services pertaining to atmosphere protection and climate in Taiwan.

1-5

Achieving Sustainable Development Goals

Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Sustainable Development Goals for Six Value Task Forces

Task Force Corresponding SDGs Corresponding Material Issues	2021 Objectives/ Illustration of Progress	Key Results and Performance	Short-term Goals (2023)	Medium-term Goals (2025)	Long-term Goals (2030)
Corporate Governance <ul style="list-style-type: none"> ● Financial Performance ● Fleet Development and Management ● Risk and Crisis Management ● Governance and Business Integrity ● Brand Management 	Achieving 100% of sustainability tasks for the year and establishing the employee awareness improvement plan	☑ Provided employee CSR awareness training and added mandatory online courses for new employees	Achieving 100% of sustainability tasks for the year and implementing the employee awareness improvement plan	Regularly reporting progress on CSR tasks to the Corporate Sustainability Committee and holding at least two CSR training sessions for affiliates	Disclosing sustainable development of airline transport affiliates
	Implementing operating mechanisms for SDGs	☑ <ul style="list-style-type: none"> • Reviewed SDGs for each task force on a rolling basis • The Corporate Sustainability Committee reviewed the progress of each task force every year • The task forces delivered status reports on a quarterly basis 	Implementing operating mechanisms for SDGs	Assisting industry partners in building up capacity for sustainable development	Supporting global sustainability initiatives to expand the industry influence
Trust <ul style="list-style-type: none"> ● Public Health and Safety ● Cargo Service Management ● Market Competitiveness ● Sustainable Innovation and Development ● Flight Safety Management ● Passenger Services Management ● Information Security Management ● Customer Relationship and Satisfaction ● Privacy Management 	Implementing personal data management systems, in accordance with GDPR and personal data protection laws	☑ <ul style="list-style-type: none"> • Created a personal information management system • Conducted personal data inventory and personal data risk assessments • Encouraged all employees to complete personal data training • Created a personal information audit system • Organized a personal data management review meeting 	Implementing personal data management systems, in accordance with GDPR and personal data protection laws	Receiving ISO27701 Privacy Information Management certification in the collection, processing, and use of personal data in the Passenger Service Management Procedure (including Taiwan and EU headquarters)	Maintaining validity of ISO27701 Privacy Information Management certificate, and keeping a score of 90 or higher in the DJSI personal data protection criteria
	Increasing the cargo service customer satisfaction to 88%	☑ The cargo service customer satisfaction was 88.3% in 2021	Cargo service customer satisfaction		
			88%	89%	90%
	Continuously participating in aviation organizations and increasing influence	☑ CAL attended 13 meetings of international aviation organizations and domestic flight safety seminars in person or via video conference or telephone <ul style="list-style-type: none"> • International Civil Aviation Organization: 2021 AAPA CaSWG meetings (3 times), 2021 AAPA FOSWG meetings (3 times), 2021 International Air Safety Summit (IASS), 2021 Airbus Safety Live Event, 2021 EASA SAFE 360° • Domestic flight safety seminars: "Railway Chief Safety Consensus Seminar", "2021 Transportation Safety Information Seminar", "2021 Flight Safety Operations Seminar", "Aviation Technical Regulations and Risk Management Flight Safety Expert Seminar" 	Performing aviation data study and analysis for future release	Publishing the results of flight operations studies to improve technical capacity of aviation industry	Developing innovation plans with other airlines to drive innovation momentum

Contents

Preface


1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Task Force Corresponding SDGs Corresponding Material Issues	2021 Objectives/ Illustration of Progress	Key Results and Performance	Short-term Goals (2023)	Medium-term Goals (2025)	Long-term Goals (2030)
 <ul style="list-style-type: none"> ● Public Health and Safety ● Cargo Service Management ● Market Competitiveness ● Sustainable Innovation and Development ● Flight Safety Management ● Passenger Services Management ● Information Security Management ● Customer Relationship and Satisfaction ● Privacy Management 	<p>Strengthening the promotion of just culture</p> <p style="text-align: center;">☑</p>	<ul style="list-style-type: none"> • Completed the safety culture package for dummies activities (8 programs with 3 Q&A sessions) that used easy-to-understand case studies to help employees learn the essence of the safety subculture (just culture/report culture/awareness culture/notice culture/learning culture/flexible culture) • Implemented Management by Walking Around (MBWA) course for junior and mid-level managers of front-line units. We used interactive psychology for training junior managers in safety culture and management by walking around to enhance safety management functions and continuously strengthen the positive attitude and trust of safety management with junior employees. A total of 99 manager and 6 employees responsible for safety operations have completed the training 	<p>Continuing to pass IOSA certification standards and improve safety risk management</p>	<p>Continuing to pass IOSA certification standards and improve the safety management system</p>	<p>Continuing to pass IOSA certification standards and improve corporate safety culture</p>
	<p>Introducing robotic process automation (RPA) to optimize internal operating procedures and customer service mechanisms, organizing RPA training, and installing chat bots</p> <p style="text-align: center;">☑</p>	<ul style="list-style-type: none"> • Introduced robotic process automation and related applications • Organized general RPA training courses • Installed a customer service bot to answer questions 	<p>Securing development of core business information application systems and infrastructures, organizing annual disaster recovery exercises, and launching innovative application services as needed to increase revenue and reduce costs for the company and increase work efficiency</p>	<ul style="list-style-type: none"> • Promoting a smart airport: Establish a smart airport at Terminal 3 of Taiwan Taoyuan International Airport and increase customer satisfaction with digital and innovative technology application • High-speed ICT network: Set up a dedicated optical fiber and terminal system network to increase data and audio connection performance and increase operating efficiency • Continuous improvement of disaster recovery plans: Provide on-site redundancy with sufficient hardware and software capacity to respond to anomalies in the core database system and ensure high availability of the database system 	<ul style="list-style-type: none"> • Integrate tourism-related industries such as insurance, rental car, hotels, and tourist destinations and use the unique functions and characteristics of mobility to create a comprehensive smart traveler ecosystem and sharing platform. Provide passengers with a one-stop solution for purchasing travel services and products to promote technical integration and common prosperity for tourism-related industries • Evaluate the development trends and applications of new technologies, continuously improve the disaster recovery equipment and architecture, and make good use of the resources of in CAL Park for replacing equipment to maintain the effectiveness of the disaster recovery system

Contents

Preface




1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Task Force Corresponding SDGs Corresponding Material Issues	2021 Objectives/ Illustration of Progress		Key Results and Performance	Short-term Goals (2023)	Medium-term Goals (2025)	Long-term Goals (2030)
Human Resources  <ul style="list-style-type: none"> ● Labor Relations and Communication ● Sustainable Employment and Talent Attraction ● Occupational Safety and Health Management ● Human Rights 	Organizing four expert seminars that provide an opportunity for internal cross-disciplinary networking	☑	Completed four insider sharing sessions (on aviation-related topics including information management, catering supplies and catering stores, management of aircraft parts, and cargo operations). A total of 722 people attended the events	Organizing eight expert seminars that provide an opportunity for internal cross-disciplinary networking	Completing the establishment of all internal online training materials for all specialties	Applying to Taiwan's aviation talent development
	Establishing CAL's aviation management talent pool	☑	Completed building talent pools for different levels of management (including a talent pool, management training courses, and advanced management courses), and modifying related training mechanisms to develop talent for the company over the long term and lay the foundation for passing on knowledge and experience	Optimizing CAL's aviation management talent training mechanisms	Establishing the optimal learning path for CAL's aviation management talent pool	Promoting Taiwan's aviation talent development
	Percentage of female managers reaching 24.5%	⬆️	The percentage of female managers has risen to 27.82% in 2021	Percentage of female executives reaching		
Cooperation  <ul style="list-style-type: none"> ● Sustainable Supply Chain Management 	Maintain SAQ score at 85 points	☑	<ul style="list-style-type: none"> • 8 high-risk suppliers were identified in the 2021 sustainability self-assessment questionnaire • The average annual score was 88.17 in 2021 	Maintain SAQ score at		
	Optimize risk management for sustainable supply chain, implement SAQ, and audit 30% of critical tier-1 suppliers	☑	<ul style="list-style-type: none"> • Met the target of auditing 36% of the 36 key first-tier suppliers in 2021 • Completed auditing all 8 high-risk suppliers in 2021 	Optimize risk management for sustainable supply chain, implement the SAQ, and audit 70% of critical tier-1 suppliers and 50% of critical tier-2 suppliers by 2023	Optimize risk management for sustainable supply chain, implement the SAQ, and audit 100% of critical tier-1 suppliers and 100% of critical tier-2 suppliers by 2025	Providing supply chain training, improving assistance mechanisms, and implementing ongoing SAQs
Society  <ul style="list-style-type: none"> ● Social Feedback and Engagement 	Organizing at least one long-term charity project	☑	<ul style="list-style-type: none"> • Participated in the charity activities organized by Huashan Social Welfare Foundation for the three traditional Chinese holidays (Chinese New Year, Dragon Boat Festival, and Mid-Autumn Festival), sponsored public welfare funding, and provided to care the elderly in Dayuan District who live alone • Organized one charity sales event and donated the income from the charity sales minus the cost and donated the same amount to organizations in Taoyuan that help adolescents and children such as Muhsiang Sweet Home, White Kite Children's Home, and Adolescents' Home Taoyuan to make contributions to the society 	Planning long-term charity projects	Developing opportunities for students to receive international education	Improving the quality of education in underdeveloped areas / developing countries
	Participating in at least one charity activity that improves the international visibility of Taiwan	☑	Supported the national disease prevention policies and helped transport the first batch of negative pressure isolation chambers donated by domestic companies to Taiwan and provided full sponsorship for the air transport fees	Participating regularly charity activity that improves the international visibility of Taiwan	Promoting economic growth and employment assistance in underdeveloped areas / developing countries and improving social well-being	Promoting projects with international influence and enhancing the benefits of sponsorships



Contents

Preface

1 Sustainability Management

- 1-1 Sustainability Vision and Strategies
- 1-2 Sustainability Management Structure
- 1-3 CAL's Sustainability Value
- 1-4 Materiality Analysis and Stakeholder Engagement
- 1-5 Achieving Sustainable Development Goals

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

Task Force Corresponding SDGs Corresponding Material Issues	2021 Objectives/ Illustration of Progress	Key Results and Performance	Short-term Goals (2023)	Medium-term Goals (2025)	Long-term Goals (2030)
	Improving annual aviation fuel efficiency by 1.5% (flight operations) ⊙	<ul style="list-style-type: none"> Maintained lead among Asia Pacific airlines with fuel efficiency at 0.2442 tons per 1,000 RTK Used 10% SAF for the delivery flights of new aircrafts Implemented 12 improvement plans for air fuel efficiency 	Improving annual aviation fuel efficiency by 1.5% and achieving carbon-neutral growth (CORSA CNG2020) (Net zero emissions by 2050)		
	Reducing carbon emissions in ground operations by 39% as compared with 2009 ⊙	<ul style="list-style-type: none"> Reduced carbon emissions in ground operations by 45.8% compared with 2009 (preliminary inventory results) Implemented 59 environment and energy improvement plans 	Carbon emission reduction compared to 2009		
	Implementing TCFD evaluation and disclosure ⊙	<ul style="list-style-type: none"> Reported climate governance reports to the Risk Committee of the Board of Directors Continued to publish climate-related financial information 	41%	44%	50% (Net zero emissions by 2050)
	Reducing general waste (non-recyclable) by 3% compared with 2018 ⊕	Reduced domestic waste by 38% in 2021	Reduced general waste production from ground operations compared to 2018		
	Industrial waste recycling ratio reaching 41% ⊕	Industrial waste recycling ratio reached 56% in 2021	5%	7%	12%
	Reducing water consumption from ground operations by 2.2% compared to 2018 ⊕	Reduced water consumption in 2021 by 23.9% compared to 2018 and implemented equipment updates, pipeline inspections, and employee education	Industrial waste recycling ratio		
	Reducing paper consumption by 8% compared to 2018 ⊕	<ul style="list-style-type: none"> Reduced paper consumption in 2021 by 37.1% compared to 2018 Expanded the digitalization of services and administrative operations 	43%	45%	50%
	Embargoing transport of endangered species and prohibiting use of illegal species as food ingredients ⊙	Continued to implement the embargo on the transport of endangered species and prohibition on the use of illegal species as food ingredients; expanded advocacy campaigns to increase customers' ecological conservation awareness	Reduced water consumption from ground operations compared to 2018		
	Reduction of total in-flight waste compared to 2018 NEW	<ul style="list-style-type: none"> Implemented in-flight waste inventory and reduction management measures Set reduction targets 	5%	7%	10%
	Reducing use of disposable plastics for in-flight services NEW	<ul style="list-style-type: none"> Implemented inventory and reduction management measures for disposable plastics used for in-flight services Set reduction targets 	Reduced paper consumption compared to 2018		
	Reducing average food waste produced per person for in-flight services from 2020 levels NEW	<ul style="list-style-type: none"> Implement pre-selection of meals to optimize operating procedures Set management targets 	14%	30%	50%
			Embargoing transport of endangered species and prohibiting use of illegal species as food ingredients		
			Reduction of in-flight waste compared to 2018		
			25%	50%	65%
			Reduction in the number of disposable plastics		
			50%	90%	100%
			Reduction of average food waste produced per person compared to 2020		
			5%	10%	25%

Environment

- **Climate Change Mitigation and Adaptation**
- **Energy Management**
- **Environmental Risks and Business Efficiency Management**
- **Green Services and Sustainable Catering**
- **Resource Management**

● Environmental ● Social ● Governance **Key Issue** ⊕ Goal Exceeded ⊙ Goal Attained ⊖ Goal Not Attained **NEW** New Issue

Note: The importance of material issues to CAL may correspond to more than one task force; table lists only most relevant task force.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

CHAPTER 2



A New Journey

Value Creation

- 2-1 Trust **G**
- 2-2 Human Resources **S**
- 2-3 Cooperation **G**
- 2-4 Environment **E**
- 2-5 Society **S**

Contents

Preface

1 Sustainability Management

2 Value Creation

2-1 Trust

2-2 Human Resources

2-3 Cooperation

2-4 Environment

2-5 Society

3 Corporate Governance

ESG Data and Appendix

2-1

Trust


HIGHLIGHTS


Preemptive Protective Measures

CAL actively cooperates with the national disease prevention regulations in response to the COVID-19 pandemic. We implemented advanced preparation and protection measures to ensure the health and safety of passengers and crew members to jointly protect public safety and health.



ISMS and PIMS certification introduced for core information systems

In 2020, the Company's core information systems passed the "Information Security Management System (ISMS) ISO 27001: 2013" and "Privacy Information Management ISO 27701: 2019" certification. To maintain the validity of the certificates, the Company has passed the annual reinspection in 2021. The Company shall continue to implement monitoring, review, maintenance, and improvements to ensure compliance.



10th time IOSA safety certification

CAL met the IATA Operational Safety Audit (IOSA) standards for the 10th time and continue to meet the highest international standards.



IATA Travel Pass pilot program

CAL actively develops the digital health platform and has tested the International Air Transport Association (IATA) Travel Pass starting from August 30, 2021. We introduced digital health certification procedures and activated them for trial operations for return flights from 8 destinations including Los Angeles, Ontario, San Francisco, New York, Vancouver, Frankfurt, London, and Singapore to provide passengers with a safer flight experience.



Co-organized the 2021 Flight Safety Operations Seminar

The 2021 Flight Safety Operations Seminar was organized by the China Aviation Development Foundation and the Civil Aeronautics Administration of the Ministry of Transportation and Communications (MOTC), and co-organized by CAL. The Seminar was organized to increase overall flight safety in Taiwan and prepare for the opening of Taiwan to foreign visitors after the pandemic.

Management Approach

GRI 103-1, 103-2, 103-3

Topic of Concern

- Public Health and Safety
- Cargo Service Management
- Market Competitiveness
- Sustainable Innovation and Development
- Flight Safety Management
- Passenger Services Management
- Information Security Management
- Customer Relationship and Satisfaction
- Privacy Management

Importance of Material Issues

Zero accident is the foundation for creating sustainable value for customers. Therefore, providing reliable and safe service is not only the core value of CAL, but also our way to sustainability. As a professional transportation service provider, the sustainable operations of CAL depend on the quality of transportation service provided. To create sustainable value for customers, CAL is dedicated to protecting customers' privacy, providing premium service that meets their expectations and needs, and continuing optimizing the quality of service.



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Commitment and Long-term Goals

• Commitment

Flight safety is CAL's most solemn and important commitment to customers and the public in its 62 years of history. We are committed to compliance with regulations and zero flight safety accidents and we pledge that we shall do all we can to ensure the safety of all passengers and cargo on each journey.

We shall also uphold our consistent service ideals of respect for customers and protecting customer rights during the global COVID-19 pandemic by monitoring international development while complying with national policies and full consideration of customer interests to create a reliable and high-quality service experience. We have adopted a brand-new national flight team slogan during the pandemic — "We Are Always Here for You." We shall continue to fulfill our corporate mission of "creating more wonderful moments through flying."

• Long-term Goals



2023

1. Implementing personal data management systems, in accordance with GDPR and personal data protection laws
2. Increasing the cargo service customer satisfaction rate to 88%
3. Performing aviation data study and analysis for future release
4. Continuing to pass IOSA certification standards and improve safety risk management
5. Securing development of core business application systems and infrastructures, and launching innovative application services as needed to increase revenue and reduce costs for the company and increase work efficiency

2025

1. Receiving ISO27701 Privacy Information Management certification in the collection, processing, and use of personal data in the Passenger Service Management Procedure (including Taiwan and EU headquarters)
2. Increasing the cargo service customer satisfaction rate to 89%
3. Publishing the results of flight operations studies to improve technical capacity of aviation industry
4. Continuing to pass IOSA certification standards and improve the safety management system
5. Promoting a smart airport: Establish a smart airport at Terminal 3 of Taiwan Taoyuan International Airport and increase customer satisfaction with digital and innovative technology application

6. High-speed ICT network: Set up a dedicated optical fiber and terminal system network to increase data and audio connection performance and increase operating efficiency
7. Continuous improvement of disaster recovery plans: Provide on-site redundancy with sufficient hardware and software capacity to respond to anomalies in the core database system and ensure high availability of the database system

2030

1. Maintaining validity of ISO27701 Privacy Information Management certificate, and keeping a score of 90 or higher in the DJSI personal data protection criteria
2. Increasing the cargo service customer satisfaction rate to 90%
3. Developing innovation plans with other airlines to drive innovation momentum
4. Continuing to pass IOSA certification standards and improve corporate safety culture
5. Integrate tourism-related industries such as insurance, rental car, hotels, and tourist destinations and use the unique functions and characteristics of mobility to create a comprehensive smart traveler ecosystem and sharing platform. Provide passengers with a one-stop solution for purchasing travel services and products to promote technical integration and common prosperity for tourism-related industries
6. Evaluate the development trends and applications of new technologies, continuously improve the disaster recovery equipment and architecture, and make good use of the resources of in CAL Park for replacing equipment to maintain the effectiveness of the disaster recovery system

Unit in Charge

Corporate Sustainability Committee — Trust Task Force and Corporate Safety Committee

Management Mechanisms

- The Corporate Sustainability Committee convenes a meeting at least twice every year
- The Corporate Safety Committee convenes a meeting every quarter on a regular basis
- The quality review meeting is convened every half year on a regular basis
- The Trust Task Force submits the KPI report to the Corporate Sustainability Committee every quarter
- The personal information protection management review meeting is convened every year on a regular basis

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

Objectives and Plans GRI 102-44

Key Point	SPI (Note 1) / KPI	2021			2022 Objectives
		Objectives	Performance	Achievement	
Flight Safety	Fatal and Hull Loss (Accident rate)	0	0	100%	0
	Runway Excursions (RE)	0	0	100%	0
	Controlled Flight into Terrain (CFIT)	0	0	100%	0
	Loss of Control in Flight (LOC-I)	0	0	100%	0
Customer Service	Overall Passenger Satisfaction	87.8	90.7	100%	87.8 (Note 2)
	Overall Cargo Service Satisfaction	88	88.3	100%	88.0
	Overall Maintenance Satisfaction	8.4	8.24	98.1%	8.4

Note 1: SPI refers to safety performance indicators. No flight safety penalties were imposed on CAL in 2021.
 Note 2: The sum of target values proposed by units show that the overall passenger satisfaction targets in 2022 were the same as 2021.

Grievance Mechanism

- **Passenger: Passenger Branch Office** — Website
- **Cargo: Cargo Sales, Marketing & Service Division** — Website
- **Aircraft Maintenance: Engineering and Maintenance Organization** — E-mail: emo.customer@china-airlines.com

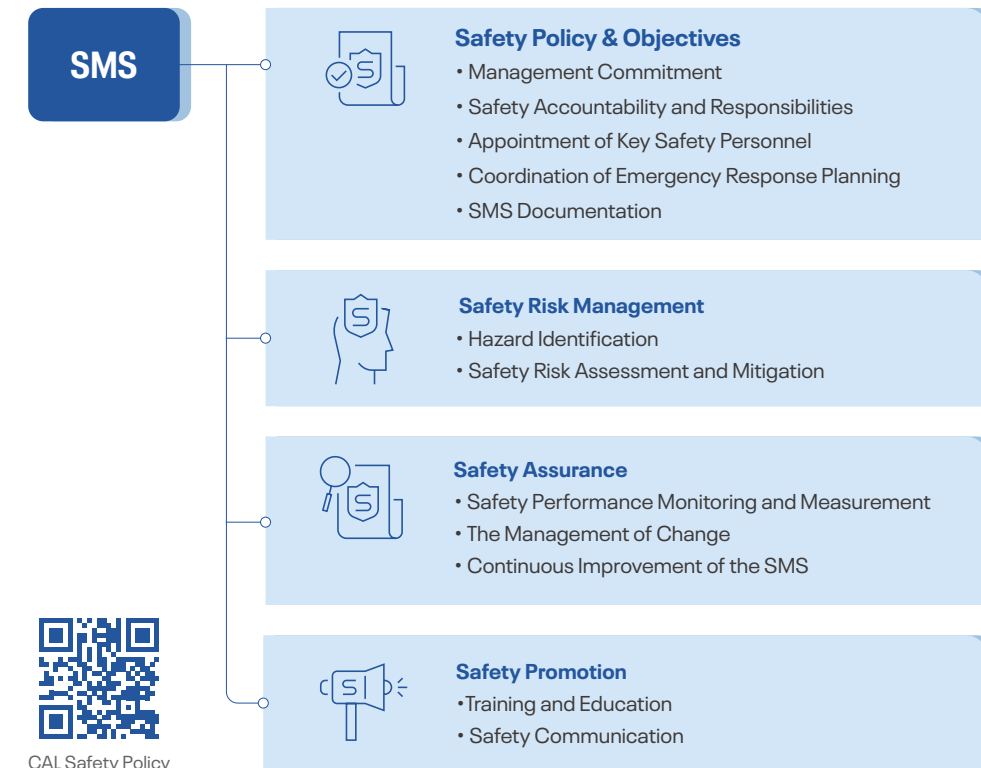


2-1-1 Flight Safety

Safety is the core value of CAL and our absolute commitment to customers. We always take a consistent and uncompromising stand on flight safety. With a zero tolerance on flight safety accidents, CAL has comprehensive control over flight safety through management systems. CAL continuously improves overall flight safety and endeavors to reinforce the corporate culture of safety to make sure that securities are fully in place to provide passengers with safe and reliable flights.

Safety Management System (SMS)

CAL follows the requirements in the civil aviation regulations of Taiwan and references the guidelines in the International Civil Aviation Organization (ICAO) DOC. 9859 Safety Management Manual (SMM). CAL has implemented the Safety Management System (SMS) since 2007. After more than a decade, we continue to meet international standards and national regulations with excellent results. The core of CAL's SMS is safety risk management. CAL analyzes and manages operational risks systematically through continuous risk identification and management. We also set Safety Performance Targets (SPTs) for comprehensive tracking, control, and risk mitigation.



- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

Safety Risk Management

1. Setting and Monitoring Safety Performance Indicators / Targets (SPI / SPT)

Based on past performance and Safety Reporting System, requirements of authorities in charge of civil aviation, plus official safety reports provided by international organizations, CAL sets its annual SPIs / SPTs. The annual safety performance indicators are monitored in executive meetings and reviewed and discussed in review meetings of the safety task force of each unit on a regular basis, to meet flight safety management requirements to meet domestic and international safety standards and attain the highest safety standards.

Safety Management Meeting

Board of Directors Risk Committee

- Corporate Safety Office reports CAL's overall risk

Corporate Safety Committee

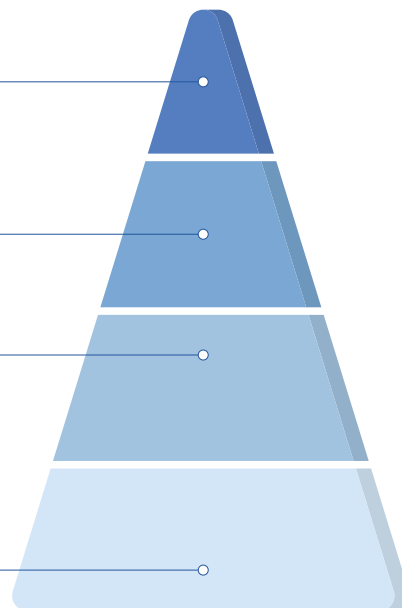
- Corporate Safety Office reports the implementation of quarterly safety management
- Discuss critical safety issues

Airline Safety Review Committee

- Report the implementation of monthly safety management
- Report critical safety issues

Safety Action Group

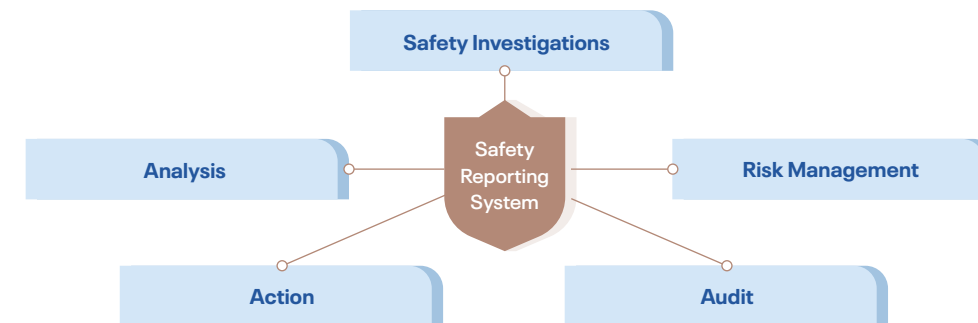
(Flight Operations Division, Engineering & Maintenance Organization, Cabin Crew Division, Ground Service Division, System Operation Control Division, Inflight Supply Chain & Marketing Division, Cargo Sales, Marketing & Services Division, and other support divisions)



2. Safety Reporting System

To enhance their awareness of flight safety, CAL encourages employees to use the Safety Reporting System to proactively identify potential risks and report possible safety issues in their daily work. Through risk reporting, CAL prevents unsafe incidents from occurring and increases its overall security level. In addition, CAL conducts risk analysis and assessments based on seasonality, trends of flight safety, and changes in internal and external environments. Making a further effort to control risks, we also communicate safety-related discipline and conduct to our employees in announcements or meetings. CAL has a reward mechanism in place to encourage employees to report potential safety issues. Although the number of flights remained affected by the COVID-19 pandemic in 2021, employee still actively filed safety reports with 911 reports filed

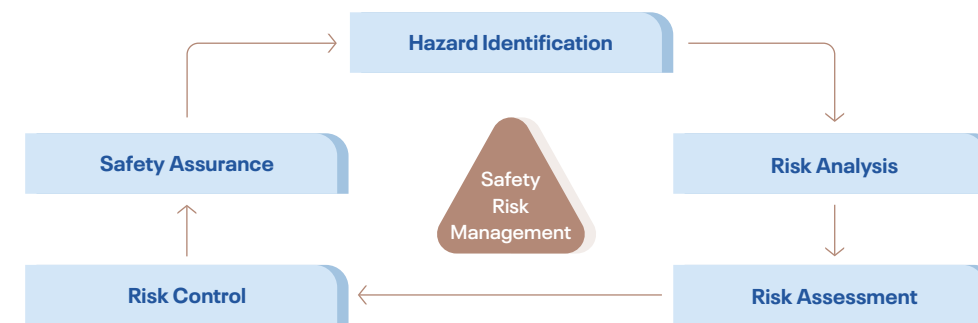
this year and rewards were presented 53 times. The Company has been ranked first in terms of the number of hazard reports filed to Taiwan Taoyuan International Airport for 4 consecutive years, which demonstrates the effectiveness of the active reporting system.



3. Safety Risk Management

Through risk identification, risk assessment, risk control, monitoring, and review, CAL not only mitigates risks to a level as low as reasonably practicable (ALARP), but also predicts potential safety issues in normal system operations and solves them early to prevent accidents from occurring. To instill the concept of risk management into the operation units and strengthen employees' use of risk management, CAL has, since 2015, provided regular safety risk management (SRM) training and assigned frontline units to implement self-evaluations and execute risk management operations. They must implement safety risk management in accordance with internal and external information, changes in the operation environment, adjustment of regulations, and changes in procedures and equipment.

In 2021, the Civil Aeronautics Administration of Taiwan issued a flight safety bulletin regarding to the flight dispatch monitoring of flight crews having taken COVID-19 Vaccination. CAL have conducted risk management and implemented crew schedule monitoring accordingly.





Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

4. Flight Operations Quality Assurance

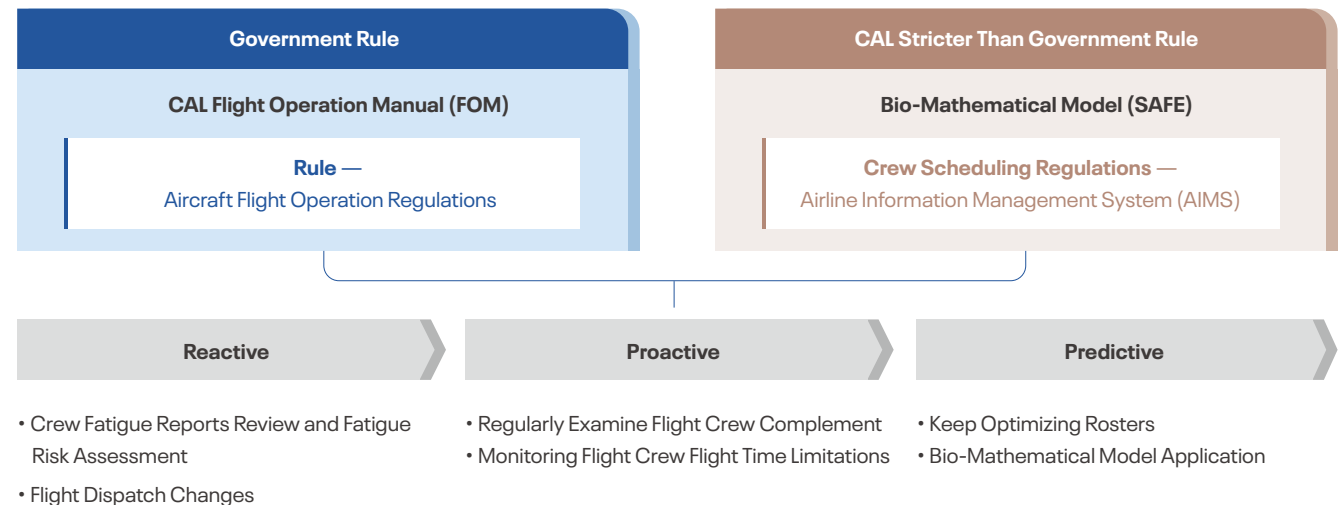
CAL utilizes Flight Operations Quality Assurance (FOQA) and the Flight Operations Quality Information System (FOQIS) developed by CAL to quickly identify the potential risks of the flight crew operations and promptly provide guidance for them to take corrective measures. Apart from producing monthly trend analysis report of FOQA for CAL's fleet as references, CAL shall conduct a necessary investigation and analysis, take corrective measures, and continuously monitor the effectiveness of subsequent improvements and corrective measures in accordance with the regulations for operations, thereby lowering flight operation risks and ensuring flight safety.

5. Fatigue Management

In addition to fatigue management regulations set forth in domestic civil aviation laws, CAL follows the Fatigue Management Guide for Airline Operators (2nd Edition) established by the International Air Transport Association (IATA), International Civil Aviation Organization (ICAO) and the International Federation of Air Line Pilots' Associations (IFALPA) in 2015 to implement crew fatigue management mechanism using a prescriptive approach. In 2019, CAL incorporated the fatigue management system into the safety policy and introduced a new crew scheduling system (AIMS) and a flight crew fatigue management system (FRMSc-SAFE). Through predictive risk identification and proactive actions, CAL plans to optimize crew scheduling and fatigue management. Due to the impact of the pandemic in 2020, CAL referenced the IATA's "Guidance for managing crew fatigue during a crisis (1st Edition)" to manage crew fatigue. CAL actively reviewed the fatigue conditions and changes in safety behavior to identify potential risks for evaluations and adopt suitable mitigation measures.

In 2021, we received 60 crew member fatigue reports and found in the review that all mission assignments complied with regulatory requirements and the Samn Perelli Seven-Point Fatigue Scale (SPS). The fatigue reports this year included feedback on continuous mission assignments during the pandemic, flight delays, and improvements for the environment for taking breaks. The Company has provided communication channels to improve the issues reported by the crew members and encouraged them to seek medical consultation for fatigue management according based on their conditions to meet the operational needs and quarantine regulations during the pandemic.

CAL Flight Crew Fatigue Risk Management



Flight Task Evaluation

Sectors	Flight Character
Rest Period	STA Zone
Flight Time	Flight Duty Period
Time Zone	STD Zone

6. Alcohol Test Mechanism

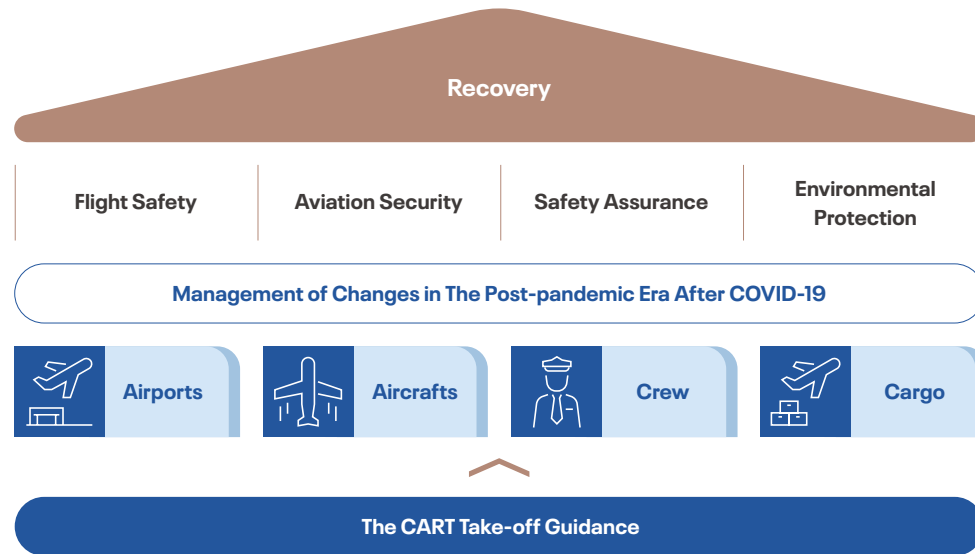
According to the Aircraft Flight Operation Regulations of the Civil Aeronautics Administration, CAL has established the alcohol test mechanism to conduct alcohol tests for operations personnel, such as flight crew, cabin crew, flight dispatchers, and maintenance personnel, and increase their alertness of flight safety.

Implement Changes in Response to the Pandemic and Ensure Flight Safety Management

Due to the impact of the COVID-19 pandemic, the Company continued to reference the CART Take-off Guidance (TOGD) issued by the International Civil Aviation Organization (ICAO) in 2021 for airports, aircrafts, crew, and cargo as well as the disease prevention regulations of Taiwan and disease prevention guidelines of civil aviation authorities in different countries to implement comprehensive flight safety risk management. We use comprehensive response and preparedness mechanisms to respond to the impact and changes brought forth by the pandemic. In the post-pandemic era, we use risk management for the restoration (restart) of operations for each stage. Domestic and foreign units and overseas branches have completed 66 risk management assessments and implemented adjustment and mitigation measures in accordance with changes in risk to ensure continuous safe operations.

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

COVID-19 Pandemic Safety Risk Management



Due to the violation of disease prevention health management measures of individual crew members in 2021, the Company was fined twice by the Civil Aeronautics Administration with a total fine of TWD 3 million for failure to take effective actions for disease prevention management and liability for supervising crew members. The Company has continuously strengthened disease prevention measures for crew members and implemented disease prevention management in accordance with the latest regulations of the Central Epidemic Command Center and Civil Aeronautics Administration of the MOTC.

Enhanced Disease Prevention — Passenger and Employee Safety

1. CAL revised the "CAL Crew Member Disease Prevention Health Management Measures" in accordance with the "Principles for Crew Member Disease Prevention Health Management Measures of National Airline Companies" published by the CAA. We implemented enhanced management of disease prevention measures for flight cleaning and disinfection, meal preparation, repairs, refueling, and other operations / personnel.
2. CAL supported the Crew Member Zero-COVID 2.0 Plan (May 11 to June 27, 2021) for 1,258 flight crew members and 2,898 cabin crew members. We also established the "Flight Crew Zero-Contact Plan" to effectively monitor the development of the pandemic.
3. Implement employee COVID-19 vaccination to enhance the immunity of employees.
4. To strengthen disease prevention, we have installed six smart disease prevention gates at the head office. They effectively remove 99.9% of the COVID-19 viruses and ensure the safety of the workplace environment.



Smart Disease Prevention Gate



CAL Crew Member Disease Prevention Health Management Measures

Safety Promotion and Training

To ensure flight safety, CAL organizes educational and entertaining safety events every year to instill the significance of safety among all employees and constantly enhance their awareness of flight safety. The safety training activities in 2021 continued the essence of safety management for "safety identification, active implementation, participation, and continuous improvement". We aimed to enable all employees to act safely through experiential learning and positive motivation together reinforcing the safety culture in CAL and achieve the highest flight safety standards.

1. Safety Management System Recurrent Training — "Training for Management by Walking Around for Entry-level and Mid-level Managers"

CAL organized the "Training for Management by Walking Around for Entry-level and Mid-level Managers" courses for front-line units this year to continue to increase the support and trust between the management and entry-level employees regarding safety management. The training involved safety culture and management by walking around training for entry-level managers through interactive psychology. The results are provided to level 2 managers with the aim of improving safety and management competency and increasing positive interactions. A total of 99 managers and 6 safety personnel completed the training.



- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

2. Safety Promotion — "Unlocking the Secrets to Aviation Safety" Essay Contest

CAL organized an essay contest for all employees and voting by readers to create a sound safety culture. Experts of different units share their routine operational procedures and experience to help all employees gain a better understanding of the work of other units. Many employees submitted entries and the Company selected 6 outstanding works for publication in the internal safety journal after intense competition and evaluation.



One of the Winning Entries in the "Unlocking the Secrets to Aviation Safety" Essay Contest

3. Safety Promotion — Co-organized the 2021 Flight Safety Operations Seminar



On December 14, 2021, China Aviation Development Foundation and CAA Organized the "2021 Flight Safety Operations Seminar" with the Support of CAL

Flight Crew Management

Professional Training and Evaluation GRI 404-2

CAL differentiates risk factors and implements risk management mechanisms based on the three perspectives of "Prediction", "Proactive", and "Passive" through complete internal and external environmental change response trainings, such as training for new airports, routes, aircrafts, systems, protocol procedures, systematic flight training / qualification, flight operation quality assurance (FOQA), and periodic appraisal of trainers / examiners, pilots who graduate from our training programs are highly professional, reliable, and fully capable of safeguarding passenger safety.

Note: The goal of FOQA is to reduce the risk of accidents and hull loss by using past flight data and flight log excerpts to discover abnormal incidents and to analyze each fleet's operational characteristics. We then evaluate the findings to look for and rectify potential safety risks.

1. Stringent Training and Objective Testing

In order to implement our commitment of flight safety with a surge of demand for flight crew on the global market and ensure that flight crew training meet stringent requirements and objective tests, CAL strictly requires our flight crew to complete training/tests. To ensure solid flight training, they must pass the training for new aircraft models, upgraded ranking, and switching between aircraft types. Cadet pilots must complete at least 10 months of training programs at well-known flight training schools in the United States or Australia.

CAL has introduced evidence-based training (EBT) to replace traditional recurrent training and tests. The EBT is guided by risk and crisis management, utilizing big data collection and analysis to enhance the ability of handling abnormal situation by individual behavior, fleet performance, operation sites, and historical record of events etc. Since January 1, 2018, CAL has implemented annual "Flight Crew EBT" refresher training and fitness tests and achieved 100% EBT for a total of 2,329 flight crew in 2021.

2. Professional Training Facilities

As the first airline to introduce civil flight simulators in Taiwan, CAL is equipped with various types of simulators for flight training. In addition to simulating various adverse weather conditions, simulators can incorporate a variety of contingencies for constant simulation training; they can also display the tolerance limits of aircraft designs and carry out training in any possible extreme and dangerous situations without incurring any risk in the exercise. The training process can also be recorded as a basis for review and improvement for flight skill and expertise.

CAL's flight simulators and ground / water escape training facilities have been certified by international aviation administrations. The flight simulators are available for domestic and international training. CAL will continuously invest in and upgrade training equipment to ensure flight safety.

3. A Comprehensive Management System

The Integrated Pilot Training System (IPTS) was since 2014 to comprehensively E-training records and integrate training course information. In 2021, 355 CAL flight crew have participated in a variety of short- and long-term training courses. CAL also completed the system connection and integration for IPTS with the new crew scheduling system (AIMS) introduced in 2019 to ensure the effective management and use of training resources.

In response to the impact of the COVID-19 pandemic on flight operations in 2020, CAL has organized regular flight simulator training, tests, and actual flights for all flight crews in accordance with civil aviation regulations. We also formulated and executed continuous simulator familiarization training for all flight crew members of B738 aircrafts for which more flights were canceled and co-pilots of long-range fleets with relatively fewer landing experience. In 2021, CAL reviewed training



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

plans and course contents for flight crews during the pandemic and implemented adjustments to enhance the quality of training and meet qualitative targets for flight operational safety.

In response to introduce of New A321neo aircrafts, CAL has assigned flight crew members to Airbus for training for transitional training since 2021. We also developed training programs that meet domestic civil aviation regulations, related international regulations, and CAL quality requirements based on the Airbus training programs to ensure that the operations of flight crew members on new A321neo aircrafts meet international flight safety standards.

Health and Emotional Management

CAL sets strict standards not only for pilot training, but also for pilots' health and emotional management. CAL has adopted proactive planning, crew feedback and prediction in crew roster management to prevent and reduce the physical and mental stress of pilots in long-haul flight duties.

1. Life Management

To prevent and reduce the physical and mental stress of pilots in long-haul flight duties, CAL sets requirements higher than statutory ones and manages flight crew's physical and mental health so that all flight crew members are fully ready for each duty.

2. Stress and Health Management

To enhance flight crew's awareness of stress issues, human factors and crew resource management (CRM) are included in flight crew training and retraining courses. For the flight crew, appropriate stress can improve the quality of work, but excessive stress can affect attention and emotional issues. In view of this, the perception of personal stress is especially emphasized in training, and problem solving and emotional regulation are proposed for flight crew members to choose as the most appropriate way to deal with their stress. CRM training provides the concepts of teamwork and workload management to help flight crew properly face and deal with stresses caused by bad weather and schedule delays and any unexpected situation. CAL provides free psychological counseling service, where psychological consultants work with flight crew members to find feasible solutions to problems they face in their daily life.

3. Alcohol and Drug Management

CAL has established strict regulations and test procedures to prohibit the use of alcohol and drugs. This includes alcoholic beverages and food containing alcohol, as well as narcotic drugs or other drugs that may affect the normal performance of employees. CAL flight crews are not allowed to drink alcoholic beverages 12 hours prior to a flight. Since April 10, 2017, CAL has conducted alcohol test for all flight crew in accordance with the regulations of the Civil Aeronautics Administration.

4. Improved Communication and Crew Services

To improve communication with crew members and cohesion between them, CAL organizes all types of meetings on a regular basis to streamline the channels of communication and quickly respond to

and resolve their problems and needs during flight duty period. Through improved communication, we hope to provide a comfortable and secure work environment for all crew members.

Since the outbreak of the COVID-19 pandemic in February 2020, CAL Flight Operations Division has implemented disease prevention measures so that the crew members can work in a safe environment. Related response measures are as follows:

1. Provide crew members with information on the pandemic and provide them with comprehensive disease prevention equipment when they are on duty.
2. Plan disease prevention arrangements for outstation stays and request branch office to provide assistance to ensure crew members stay in hotels in accordance with the Company's disease prevention requirements. Protect crew members from being exposed to risks and prepare snack packages for them when they cannot go out and purchase food in outstations.
3. Establish real time communication channels in CAL real time communication application to ensure instantaneous communication regardless of the time zone.
4. Cooperate with government regulations, arrange for crew members to reside at Company's hotel as the home quarantine site, and provide online fitness courses to improve their health.
5. Provide employees to reside in quarantine hotels with baggage storage, uniform pick-up services, parking lot shuttle buses, and northbound shuttle buses. Provide snacks in disease prevention hotels for crew members when they take up residence.

Proactive Planning

- Monthly review and discuss next month schedules with fleet office.
- Better rosters for flight crew's dispatch and rest time.
- If performed a night flight, the maximum duty duration is reduced by 2 hours.
- Monitor crew pairing by their performance in each fleet.
- Schedule a day off after a specific flight duty.
- Plan home quarantine dates in accordance with the regulations of the CDC and CAA during the pandemic.

Crew Feedback

- Investigate crew report regarding fatigue issue and mitigate by adjusting flight duty, crew number or layover as appropriate.
- The dispatcher immediately adjusts the schedule of flight crew if they report fatigue or ask sick leave. The care team also inquires about flight crew's physical and mental conditions.

Prediction

Crew number and crew pattern for new routes will be determined by fleet office after evaluation. The evaluation will also include the regulations of different countries during the pandemic.



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Inflight Monitoring and Control

CAL System Operation Control Division monitors flights and flight safety across the globe and at all times. We use communication tools to monitor operations in all sites in real time. Wherever our flights may be, all factors that may affect them are closely monitored, including weather conditions and incidents of disasters, and are immediately relayed to aircrafts in flight along with contingency plans.

The impact of the pandemic persisted in 2021 and airports across the world have resulted in changes in airport management in line with disease prevention regulations in different countries to enhance routine disease prevention. Enhanced disinfection in airports in Mainland China caused aircrafts to be held on the ground for long periods of time (over 6 hours) which severely affected aircraft dispatches and the work hours of crew members. Aircraft malfunction caused long delays and flight crews must be accommodated in hotels approved by the CAA, which created a shortage of quarantine hotels in Taiwan. The changes in international developments resulted in adjustments and closure of routes without warning. However, CAL maintained an average of 94.43% in the "international and cross-strait passenger flight punctuality rate for national airline company CAL's punctuality rate calculated based on the "punctuality rate of international and cross-strait flights of the national airline" averaged 94.43% in 2021 which was 11.43% higher than the Company's target punctuality rate (KPI was 83%). The dispatch reliability rate exceeded 99.7% which was also higher than those of domestic peers.

In response to the increase in the demand for cargo in 2022, the System Operation Control Division continues to monitor flight operations to implement more effective dispatches of cargo aircrafts to meet regulatory requirements. The System Operation Control Division has set up comprehensive dynamic monitoring for designated seats and provides real-time updates of the latest hazardous weather events to aircrafts to help pilots change routes and avoid hazardous areas. Reputable meteorologists are also employed for weather forecasts for each station to provide reference information for making decisions for flights, increase flight efficiency, avoid hazardous weather at stations, and ensure flight safety. In terms of airport monitoring, ground monitoring software and hardware are continuously upgraded to connect with the CDM system of domestic and foreign airports for flight information, air traffic radar, and the self-developed CCTV management and monitoring dashboard to monitor flight status with precision. These measures improve the punctuality rate and service quality of flights and reduces inconveniences for passengers.

Maintenance Quality

Ensuring maintenance quality is an important foundation of flight safety. With the Company's Reliability Control Program, we proactively manage the maintenance status of all aircraft. By compiling and analyzing data related to common abnormalities and technical parameters from daily operations, appropriate maintenance strategies and plans are developed; this allows us to maintain the reliability of all systems on the aircraft to enhance maintenance quality and flight safety.

1. Maintenance Quality

CAL 's maintenance organization is certified by 11 countries and regions, including the European Union, the US, and China. We have the largest modernized maintenance facilities in Taiwan, including two hangars that can accommodate 5 wide-bodied aircraft at once, as well as an Engine Test Cell with up to 120,000 lbs. of thrust capability. The Company's maintenance capability can satisfy different level of maintenance checks for various type of aircrafts. CAL has expanded maintenance service to airlines in Southeast Asia and East Asia in 2019 and was approved as a repair station by the Philippines in April 2019. CAL will continue to expand maintenance services for customer aircrafts and third-party equipment. The Company applied for maintenance certificates from Japan Civil Aviation Bureau (JCAB) in 2021 and is expected to complete reviews and obtain the license in the first half of 2022.

2. Establishing a New Maintenance Training Center

In response to rapidly growing demand for maintenance service at home and abroad, CAL was certified to establish the CAL Technical Training Center (CTC) in 2015. In 2017, CTC also obtained certification from the Civil Aviation Administration of China. CTC was the first certified institution in Taiwan to provide aircraft maintenance training for CAL-EMO and other airlines. Since CTC's foundation, a total of 226 training courses have been offered, and 2,443 trainees have completed training.

3. Elevating the Quality Management System

CAL has acquired ISO 9001 certification and continuously maintain the effectiveness of the system since 1996. In May 2017, the EMO became the first repair station in Taiwan to receive certification for the AS9110 Quality Maintenance Systems - Aerospace from the International Aerospace Quality Group (IAQG). In December 2019, CAL renewed its three-year re-evaluation contract with the accreditation institution. Consistent with its pursuit of improvement of quality, CAL-EMO will periodically conduct Plan-Do-Check-Act (PDCA) through the quality management system for continuous improvement and customer satisfaction.

Note: IAQG members include Boeing, Airbus, GE, and Rolls Royce. To manage and regulate the quality of suppliers, suppliers are required to comply with a series of established standards for quality management system, including AS 9110.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

2-1-2 Passenger Service GRI 102-44

Preemptive Preparation — Protecting Public Health

As the COVID-19 pandemic continued to loom over the world in 2021, CAL continued to implement body temperature measurements for work and shuttle buses. CAL also dedicated full efforts to integrating the passenger aircrafts of the CAL group for active business management to ensure the survival of the Company, while fulfilling social responsibilities. Through the hard work, resolve, and strength, CAL has shown to the public that CAL is not only proud to be a member of the "National Team of the Sky" but is also willing to work with institutions and organizations to jointly protect human health and safety. The key disease prevention measures taken by CAL during the pandemic in 2021 are summarized below.

CAL established a COVID-19 information services section on its official website (in Chinese, English and German) that integrates five major functions including quarantine hotel and taxi reservations, PCR test hospital information, rental service of the mobile Wi-Fi hotspot devices, and entry requirements of different countries to create a one-stop inquiry platform for the disease prevention information, services, room reservations, vehicle reservations, and appointments for tests needed during the pandemic. When the COVID-19 pandemic broke out, CAL immediately established a COVID-19 information services section on its official website to announce flight information and notices for passengers. In response to the arrival of the post-pandemic era, CAL shall continue to provide added value services other than air transportation services so that passengers can enjoy safe and convenient travel.

In terms of meals, CAL has adjusted the in-flight meals in accordance with the global pandemic ratings announced by the Taiwan Centers for Disease Control (level 1: warning, level 2: alert, and level 3:

watching). Preventing diseases, fighting diseases, and reducing transmission risks were adopted as the highest principles. CAL actively provided "Cold Sandwich Boxes" or "One Tray Hot Meal Services" based on changes in the development of the pandemic in different countries and the required in-flight disease prevention requirements of different governments to satisfy passenger's food and beverage need.

In terms of in-flight services, we have launched "zero-contact services", such as the digital menu and inflight wireless audio and video entertainment system on 738 aircrafts, which provides passengers with multimedia streaming services in the air through their personal devices. The A321neo aircraft is also equipped with a Bluetooth headset pairing function, which is environmentally friendly and reduces the chance of repetitive contact.



Disease
Prevention Section

Implementation of Disease Prevention Regulations and Crew Member Health Management

The Cabin Crew Division has actively managed the vaccination progress of cabin crew since April 2021. The Cabin Crew Division also tracks information registered by crew members on the "Vaccination Record Upload System" platform set up by the Company. The second-dose administration rate of active cabin crew has reached 100%. CAL adheres to all vaccination requirements specified in the "Operational Principles for R.O.C (Taiwanese) Airlines Air Crew Members to Implement Health Control Measures for Epidemic Prevention". We strictly enforce the regulation that only allows flights for crew members who have had two doses of COVID-19 vaccine for at least 14 days. They must also test positive for antibodies in the serum to ensure the health and safety of crew members.

We strictly enforce separation of movement for cabin crew members check in and check out. Before travel, they must fill out the digital "COVID-19 Health Declaration and Home Quarantine Notice for Crew Members of Taiwanese Airlines". We highlighted reminders on personal health protection and penalties in the mission briefing, enhance hand disinfection, and require them to pay attention to their physical and mental conditions at all times. When cabin crew are on duty, they must wear a full set

of protective gear including disposable splash-proof protective gowns, surgical masks, waterproof gloves, and full face shields that cover the eyes, mouth, nose, and body in accordance with disease prevention regulations. We simplified the supply of food and beverages and in-flight service, and require the use of masks throughout the flight except for meals and water consumption to protect the health of the crew. We increase the frequency of in-flight restroom cleaning and use special cleaning agents to wipe down faucets, flush levers, door handles, and other locations prone to contact and infection to disinfect the environment. CAL also retains restrooms near the cockpit of each aircraft type for prioritized use by crew members during the pandemic to reduce the chance of cross-infection.

We strengthened management and ground operations during stays in outstations to ensure zero-contact between crew members and airport personnel and disease prevention regulations for ground movements. We place each crew member in individual rooms and prohibit visitors and outings. They must actively report anomalies.



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Active Care for the Physical and Mental Health of Employees and Create Smooth Bilateral Communication Channels

We conduct quarantine and tests for crew members in accordance with pandemic prevention regulations when they return to Taiwan. CAL provides the list of names and assigns specialists to the site to provide assistance and maintain order during quarantine operations. We work with hospitals to set up registration and tracking mechanism to keep track of developments in real time and implement regular tests and quarantine measures.

1. During the home quarantine period after crew members return to Taiwan from level 3 warning areas, we contact crew members on the telephone and inquire about their health condition every day and register results in the "Epidemic Prevention Tracking System" of the Ministry of Health and Welfare. CAL keeps track of crew members' health conditions and answer their questions. During the self-health management period (including enhanced self-health management) after crew members return to Taiwan, we offer care, provide the latest information on the pandemic, and remind the crew members of the isolation / quarantine period and the follow-up tests.
2. CAL established the "Crew Health Management System" platform to strengthen crew members' health control measures. When crew members end their missions after entering level 3 warning areas, they must measure their body temperature twice every day and fill out results on the aforementioned platform. When crew members report irregularities or fevers, the Cabin Crew Division actively contacts them and helps arrange medical services for them. It also reports to the Medical Affairs Department to create comprehensive disease prevention records and implement health management of crew members.
3. To balance disease prevention regulations and the management of physical and mental health and stress relief for crew members, CAL created channels for instant communication of the Company's internal communication software Team +. We seek to provide comprehensive disease prevention records in the "Crew Member Health Management System" and use horizontal communication between peers to provide care on crew members' emotions, respond to cabin crew questions and individual requirements to consolidate cohesion.

Actively Cooperate with National Policies in the Flight & Cabin Crew Zero-COVID Plan

Among the 2,898 active cabin crew members (including 3 crew members whose recovery was confirmed), we had 168 cabin crew members on long-haul flights or suspected to have contact with flight crew of the risk group in the period between May 13, 2021 to May 23, 2021. They have all completed 14 days of home quarantine and performed PCR tests on day 14. All test results were negative. The remaining cabin crew members who had no flight duties and completed autonomous health management from May 11, 2021 to May 25, 2021 were classified as the safe group starting from May 26, 2021.

Maintain Disease Prevention Requirements for in-person Courses

We prioritized digital learning on the e-learning network when crew members receive the necessary safety training based on regulatory requirements during the pandemic. For courses that require hands-on operations and evaluations, we implement management based on lists of trainees and limit the number of participants. All trainees are required to wear medical masks, goggles and gloves throughout the course, and have their body temperature taken regularly. Adjacent seats are at least one ping apart, with appropriate partitions placed in separate rows to ensure social distancing. We adjusted training and evaluation procedures and implemented crowd separation management to enhance the disinfection of sites and equipment/facilities and reduce risks in the movement and clustering of trainees.

In response to the impact of the pandemic, CAL monitors the development of the pandemic at all times. When airport operations are affected by the pandemic and airports adjust entry regulations such as the maximum number of inbound passengers per aircraft or crew member screening procedures, the System Operation Control Division will immediately deliver the latest information to all related units through the Company's internal communication system and take prompt response measures. The System Operation Control Division also monitors aircraft and flight status at all times. When a passenger on a flight shows signs of illness, the flight crew will actively notify the System Operation Control Division which shall deliver related information to all units through the Company's internal communication system. The units will then arrange quarantine measures, disinfect the aircraft, and change seat covers after the aircraft lands.



On-Board Environment Clean



CAL has also established multiple disease prevention management measures in all destination airports to meet the entry quarantine regulations of different countries and manpower allocation requirements. The measures include encouraging passengers to check in early online, reminding passengers to maintain social distancing, wearing masks throughout the flight, cooperating with comprehensive baggage disinfection at Taoyuan Airport, body temperature measurement before boarding, and arrangements for employees to work from home in Taiwan and in foreign countries.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix



Key Disease Prevention Measures in 2021



Information on Flexible Travel Arrangements

1. CAL established a COVID-19 information services section on its official website in 2020 to provide the latest flight and ticket information for passengers.
2. CAL launched the disease prevention section on its official website in Chinese, English and German in 2021 that integrates five major functions including quarantine hotel and taxi reservations, PCR test hospital information, mobile Wi-Fi hotspot devices, and entry requirements of different countries to provide disease prevention information, services, room reservations, vehicle reservations, and appointments for tests needed during the pandemic.
3. CAL offered zero handling fees for the first ticket change (Restricted to specific ticket purchasing period and flight time) and provide special charter flights for passengers who have been affected by suspension of international flights entering Taiwan.
4. CAL automatically extended member mileage, ticket awards, and award tickets.
5. We integrated passenger transport aircraft resources of CAL Group and adjusted capacities to support Mandarin Airlines' domestic flights to Penghu and Kinmen in a bid to respond to passenger demands.



Passengers

Before Boarding

1. Provide a digital menu for business class and premium economy class passengers to browse and choose their meal after booking.
2. Promote the use of the eCheck-In system.
3. Regularly remind passengers to maintain social distancing in the airport and wear facemasks throughout the process.
4. Measure body temperature before boarding. If a passenger's body temperature is over the threshold, the passenger will not be permitted to board the aircraft and will be requested to receive medical attention at a local medical institution



CAL Crew Members

1. Flexibly adjust meal arrangements based on the development of the pandemic in different parts of the world and the regulations of governments.
2. Implement mandatory requirements for crew members to measure and record their body temperature when reporting for duty.



Logistics

1. Monitor the development of the pandemic in different countries at all times. When countries adjust their entry regulations, collect the latest information and deliver it to related units to facilitate immediate response.
2. Monitor flight status in real-time to obtain information on the latest developments and initiate response operations.
3. When the pandemic first broke out, CAL immediately established and activated body temperature measurement and office separation mechanisms to protect the health of employees and retain sufficient manpower to maintain the normal operations of the Company in the unfortunate event of disease transmission in the Company.
4. When the pandemic spread in May, the Company immediately activated response plans for dividing employees into separate groups to work from home to prevent infections of employees due to commutes or clustering in the office.



During Flight

1. Fully implement real-name registration when passengers change seats.
2. Request passengers to maintain social distancing after taking their seats.
3. Increase broadcasts of information on related entry regulations and compliance matters.
4. Launched the digital menu and inflight wireless audio and video entertainment system on 738 aircrafts, which provides passengers with multimedia streaming services in the air through their personal devices. The A321neo aircraft is also equipped with a Bluetooth headset pairing function, which is environmentally friendly and reduces the chance of repetitive contact.

1. Crew members shall wear personal protective equipment provided by the Company at all times during the flight.
2. Crew members must wear face masks throughout the flight (except when eating or drinking).
3. Simplify catering service procedures to reduce the contact risks with passengers.
4. Increase the frequency of cabin cleaning.
5. Increase the frequency of cleaning of lavatories during flight and disinfect the environment.
6. Retain restrooms near the cockpit of each aircraft type for prioritized use by crew members during the pandemic to reduce the chance of cross-infection.



Arrival in Taiwan

Cooperate with Taiwan Taoyuan Airport (TPE) in implementing mandatory disinfection for all inbound baggage.

1. When crew members return from level 3 warning areas, CAL arranges quarantine hotels for them in accordance with prevailing disease prevention regulations and requires them to measure their body temperature twice every day and fill out results on the "Crew Health Management System" platform.
2. When crew members report irregularities or fevers, the Cabin Crew Division actively contacts them and helps arrange medical services for them. It also reports to the Medical Affairs Department of the Human Resources Division.



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Integrate Passenger Fleet Resources of CAL Group

Mandarin Airlines uses its existing ATR 72 fleet and integrate fleet resources of CAL Group by hiring 5 A320 aircrafts with 180 seats from Tigerair Taiwan and 3 B737-800 aircrafts with 158 seats from CAL to increase the number of flights or the size of the aircraft used for flights and provide passengers with sufficient flights and seats.



Mandarin Airlines Leased Aircrafts from Tigerair Taiwan's Fleet to Increase the Number of Flights or the Size of the Aircraft Used for Flights

Customer Relations Management

Providing customer-oriented and quality service is the key to earn customer trust. CAL has established the quality policy and has designated a unit in charge of service quality control. Every year, the quality review meeting is held to set annual objectives and review service performance. Moreover, CAL has introduced the ISO 9001 Quality Management System and the TABLEAU big data analysis system to process and analyze customer satisfaction questionnaires to ensure the quality of service beyond passengers' expectations. In 2021, CAL recovered 9,512 passenger satisfaction questionnaires which accounted for approximately 5.5% of the total number of passengers. The overall satisfaction rate was 90.7%.

Ahead of other domestic airlines, CAL has set up a variety of communication platforms for different groups of customers, including Customer Service on Facebook and bulletin board on the Instagram and WeChat, to collect problems which passengers encounter during their journeys and provide the updated information. By responding to customers' needs with empathy and sincerity, we endeavor to improve their travel experience. To better understand customers' needs, CAL integrates all customer feedback through the Customer Service System (CSS) (in 2021, 40.5% of customer feedback was provided via CAL's website and 59.5% provided in other ways) and has units in charge of responding to customers within a given time limit in the hope of becoming passengers' most trusted airline.

Communication Channel

	Service Hotline		Customer Feedback — Online Feedback System
	Regular Mail		Customer Satisfaction Survey
	Comment Form Customers can fill in the comment form and hand it over to ground staff or mail it to our Customer Relationship Department.		E-mail Instead of calling, customers can simply send e-mails to change reservations or confirm their itineraries.
	Facebook CAL has created a fan page on Facebook to understand customers' needs and problems instantly and improve service quality accordingly. It is expected to increase adhesion among members and fans and develop new customers.		

Connect with the Innovative Generation with Youthful Thinking in the Post-Pandemic Era

The Company continues to launch new products to implement the "Youth Innovations" action plan to pursue the goal of increasing "Brand Awareness" in the sustainability strategy. After the delivery of the 777F cargo aircrafts, the A321neo passenger aircrafts were delivered in 2021. They consume 15-20% less fuel than previous narrow-body aircrafts and are more friendly to the environment. In response to post-pandemic demand, all passengers can use their mobile phones and Bluetooth headphones to connect to the in-flight entertainment system. We set up zero-contact detection faucets in lavatories and use HEPA high-efficiency air filtration system for the entire cabin. The 737-800 fleet also features the upgraded Wireless Entertainment System. Passengers can enjoy a wide range of multimedia streaming services during flights with their personal devices to reduce contact during the disease prevention period. We also launched services for the purchase of adjacent seats to enhance social distancing during flights. We extended membership, upgrades, reward tickets, and mileages in response to the pandemic and take care of member rights and benefits despite the pandemic.





Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

CAL adopted the "XIAO-HUA" as its avatar on social media to interact with passengers and maintain positive relations. It was used to continuously remind passengers to pay attention to border control measures of different countries and organize small online activities to continue to engage passengers on contents that include disease prevention, environmental protection, and popular science Q&A on aircrafts. We also support the "Earth Hour" on Earth Day and invite passengers to take real actions to exert brand influence. CAL organized offline events in full compliance with the government's disease prevention policies. They included the "Farewell Party" micro travel event for the 747-400 and German Christmas Market, which have received wide acclaim.

All ads and marketing materials of CAL abide by the following ethical commitments: 1. Provide accurate and balanced information for all products and services; 2. Truthfully disclose the Company's ESG actions; 3. Protect customers with weaker capacity to access information by providing accurate and sufficient information; 4. Abstain from misinforming customers on competitors' products and services. We uphold the principles of integrity and accountability to convey CAL's commitment to providing customers with a great travel experience and promoting sustainability. CAL connects with the innovative generation with youthful thinking and continues to receive international awards and recognition. They include being named the Best Airline in North Asia by Global Traveler, the well-known American travel magazine, for the 9th consecutive time, and the 2021 APEX Five Star Global Airline for the 5th consecutive year.

Customer Health and Safety and Sustainability

Food Safety

To ensure food safety and environmental sustainability, CAL requires catering service providers to strictly comply with international safety and health standards mechanisms. This covers each process from preparation, storage, and transportation at a standard temperature. Microbiological examinations are required for all products, materials, and food equipment. In addition, quality audits are carried out from time to time, and aimed at requesting catering service providers to correct non-conforming items within given time limits. If these conditions are not met, penalties will be imposed in accordance with their contracts. Training courses are also organized regarding HACCP and catering services, in order to increase employees' awareness of food safety and quality.



Onboard Drinking Water Safety

The quality of potable water is an important part of a premium customer's experience. The quality of potable water is strictly controlled by our industry-leading In-flight Potable Water Management Procedures, which are stricter than environmental regulations and bottling facility sanitation regulations.

- The safety of potable water is included in the preliminaries of new destinations.
- We have rigorous safety standards for our drinking water suppliers. Every year, audits are performed to ensure compliance.
- CAL conducts safety audits on potable water at outstations.
- CAL implements a maintenance plan for potable water facilities according to the manufacturer manual.

Local Procurement

CAL plans and designs meals in line with the "Responsible Consumption and Production" goal and moves toward renewable energy, carbon reduction, and local procurement to achieve "Decent Work and Economic Growth". From 2019 to 2021, we actively used local brands and high-quality agricultural products such as the procurement of large and small bottles of mineral water from renowned domestic brands. In 2022, we purchased bottles of sparkling water from domestic brands for in-flight services. We also purchased food and fruits from several domestic brands for crew members needs in the quarantine hotels. We switched procurement to domestic meat products and beverages or frozen products produced with fresh domestic vegetables. These measures help support local cultural and creative industries as well as quality agriculture in Taiwan as we seek to attain the goals of responsible consumption and production and environmental protection by reducing the carbon footprint, and fulfill our social responsibility to the Earth.

Enhanced Disease Prevention in Airports

1. Disease Prevention Equipment Training Courses

In response to disease prevention requirements in countries such as Canada, we produced e-Learning training courses on "use of pandemic prevention equipment and forehead temperature measurement" to ensure that ground service personnel know how to correctly wear personal disease prevention equipment and operate forehead temperature scanners. Front-line employees thus learn how to correctly put on masks / protective gowns and use forehead temperature scanners.

2. Disease Prevention and Care Team

CAL established the "Disease Prevention and Care Team" for flight crew members. It provides health inquiries every day and strengthens supervision of employee conduct during home quarantine.

3. Produce Image Files with Disease Prevention Information

CAL produced image files to enhance employees' disease prevention awareness and encouraged employees to wash and disinfect their hands frequently after the end of a shift, stay away from high-risk areas, and replace their protective equipment.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

4. Transparent Partitions at Counters in Taoyuan International Airport

We have purchased transparent partitions at Taoyuan International Airport to protect employees' health and reduce risks of infection. After an onsite survey of actual requirements with the supplier, we have completed the installation at the counter in the Airport.



Highlight Services

In 2021, CAL introduced a number of innovations and employee training programs to passenger services to improve service quality; in addition, CAL continuously studied sustainable practices in order to maintain customer service to the highest standards and stay in a leading position in the aviation industry; relevant achievements are listed below:

1. Changed How Passengers are Addressed in English

To show our respect to multiculturalism and avoid gender stereotypes, we have adopted gender-neutral greeting terminology and changed how we address passengers in the English announcements in all waiting rooms from "ladies and gentlemen" to "dear passengers" to demonstrate our commitment to Inclusion and diversity and express sincerity and respectfulness.

2. Outstanding Customer Satisfaction

In 2021, we continue to uphold the spirit of customers being our first priority and disease prevention, and consistently provide with best quality service, disease prevention products, and protective measures to ensure smooth and safe travel for passengers. The results can be reflected in our customer satisfaction scores.

2-1-3 Cargo Service

Consolidate and Reactivate Passenger and Cargo Services — Simultaneous Implementation of Multiple Strategies



CAL cargo services devised response strategies soon after the pandemic started. The team made full use of the cargo transport capacity of the 18 747F aircrafts and the 3 new fuel-efficient 777F cargo aircrafts delivered since early 2021, and scheduled flights and allocated space as needed. The team also promoted customized cargo charters, and tried to expand in express delivery, e-commerce shipping, and temperature-controlled goods. Meanwhile, the belly capacity of passenger aircrafts was increased, and passenger cabins were repurposed to transport cargo. These measures allowed CAL to maintain 10 billion freight available tonne kilometers (FATK) during the pandemic in 2021, which was an increase of approximately 13.31% from the previous year (2020). And CAL reached 7.55 billion freight revenue tonne kilometers (FRTK) which was an increase of approximately 18.62% from the previous year (2020). CAL responded rapidly in the early stages of the pandemic and shifted its operations to cargo transport. In addition to making the most use of the 21 cargo aircrafts, CAL also began assigning passenger flights for cargo transport in March 2020, which increased revenue from cargo services, reduced losses, and helped the Company respond to the pressure on business operations in the early periods of the pandemic.

We plan to increase cargo flights with long-haul passenger aircrafts to destinations such as San Francisco, Los Angeles, Amsterdam, and Frankfurt. We also use the belly capacity of passenger aircrafts on cross-strait routes and regional routes in Asia, and implemented flexible dispatches of passenger aircrafts to support cargo transport demand and support cargo aircrafts to increase the scale of operations and respond to the strong global demand for the cargo market during the pandemic (including medical and relief supplies and products for the stay-at-home economy). We operate more than one thousand cargo flights with passenger aircrafts every month. For instance, the West Coast United States route has strong demand for cargo transport and CAL flights to Los Angeles increased during the peak season to as many as 6-7 flights per day.



Loading / Unloading Operation

In terms of cargo route optimization, the Company has supported quarantine measures in many countries and adapted to changes in the market since the start of the pandemic. CAL concentrated its capacity on the Chicago and Los Angeles Airports in the United States and strengthened deployment in cross-strait and Southeast Asia. We complied with domestic border quarantine requirements and optimized crew member dispatch efficiency to increase cargo aircraft capacity to meet demand for e-commerce, consumer electronic products, and high-price charter flights. In terms of business operations, we continued to implement route revenue management and differentiated pricing strategies to satisfy the demand for transportation services of different customers.






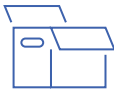
Cold Chain Service



Heavy Cargo, Over-sized Cargo, Engine Transportation Service



Four Cargo Services

 Express	 Customized	 Specialized	 General
<p>Introduction You will get the premium express cargo service and handle with money back guarantee. CAL handles Equation shipment with top priority from acceptance to delivery, and guarantees boarding on the first available flight.</p>	<p>Introduction A complete, top quality solution will be offered. Designed to meet your requirements, it is a perfect scheme under the tripartite contract among the Shipper, Freight Forwarder and CAL Cargo.</p>	<p>Introduction This is a specialized solution for special cargo with experience, attention and expertise that can transport to the final destination quickly and safely.</p>	<p>Introduction This general cargo solution is an airport to airport service with economic and reliable ways to manage your goods.</p>
<p>Advantages</p> <ul style="list-style-type: none"> • Airport-to-airport express service • Top priority for load planning • The earliest pick-up time • The latest possible booking • Extensive worldwide network • Money back guarantee 	<p>Advantages</p> <ul style="list-style-type: none"> • Customized service with loading priority and fixed rate • Regular performance report • Advanced techniques ensuring cargo safety • Various cargo types and long-distance freight capacity • A broad global service network 	<p>Advantages</p> <p>We have variations for precious artwork, heavy & oversize shipments, dangerous goods, perishable goods, live animals, pharmaceutical products, valuable goods, and all types of vehicles. Each variation is tailored to fit the specialized handling and loading procedures, as well as guarantee reliable service from our staff.</p>	<p>Advantages</p> <ul style="list-style-type: none"> • 24 / 7 online track and trace • Standard drop-off and delivery times at each station.

Quality Cargo Service

According to the latest IATA statistics, CAL's FTK ranked fifth worldwide and first in Taiwan in 2020. CAL is committed to green transportation. In addition to continuously upgrading our passenger fleet, we introduced the Boeing 777F cargo aircrafts in 2020 to significantly improve fuel efficiency. With extensive passenger and cargo fleet and network, CAL has been the industry's first choice to deliver diversified products, such as engines, perishables, temperature control cabinets, precision equipment, and e-commerce cargo. In the future, CAL will optimize cargo service and provide better service quality for its customers.

1. Special Cargo Service

CAL cargo aircrafts fly around the world and have a wealth of experience in carrying general goods, precision instruments, large equipment, precious antiquities, live animals, and other special goods. CAL makes good use of the Boeing 747F and 777F cargo aircrafts to transport special-sized goods to provide safe and professional transportation services under the close supervision of dedicated CAL personnel. CAL often helps transport critical national cultural relics and relief supplies. With its diverse experience in transportation and excellent quality of service, CAL has promoted cultural exchanges between Taiwan and other countries. In response to the pandemic, CAL also provides new service models such as cargo flights with passenger aircrafts and using the passenger cabin for cargo transport. These measures help ensure employee safety and support disease prevention policies as we actively develop a variety of flexible cargo transport business models to ensure continuous operations of international logistics. CAL was also responsible for transporting COVID-19 vaccines and transported 350 tons of vaccines of different manufacturers to meet citizens' urgent needs for vaccines. We also leveraged our dense network of flights and services to import and transport more than 75 million doses of vaccines to Taiwan and other countries so that our advantages can be used to fight the pandemic with other countries.



Ramp Operation



Live-Animal Transportation Service

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

2. Upgraded Cold Chain Service

In response to increased demand for air transport of temperature-controlled goods (such as pharmaceuticals and vaccines), CAL has significantly improved its cold chain service. This included transportation of temperature-controlled containers, SOP for active / passive temperature-controlled cargo, and upgraded refrigeration / freezing equipment. In April 2019, CAL passed the audit and obtained the CEIV Pharma certification and became Taiwan's first airline to earn this certification. In the future, CAL will offer customized, refined cold chain service to provide diversified and quality temperature-controlled cargo service for customers around the world.

CAL actively prepares cold-chain transportation for vaccines and pharmaceuticals. With comprehensive risk assessment and personnel training as well as compliance with the regulations of domestic and foreign civil aviation authorities and the aircraft manufacturers, CAL began relaxing restrictions on the maximum amount of dry ice permitted for various aircrafts and developed active / passive temperature-controlled container products for the transportation of vaccines under safe conditions. CAL actively provides major vaccine and pharmaceuticals manufacturers with logistics solutions to contribute to the protection of citizens' health. This demonstrated the innovation and flexibility of the CAL cargo transport team and demonstrated to citizens CAL's commitment and strength for becoming the "National Team of the Sky."



Temperature-Controlled Containers

3. Cargo Safety Management

CAL has strengthened risk management measures, such as Safety Report System, cargo service management platform, ground damage database, and abnormal weather reporting mechanisms. CAL has also established a risk prevention mechanism with the risk

assessment of the Safety Report System to prevent irregularities. In addition, CAL implemented walk-around check to enhance the management of warehouse and ramp operations. CAL also implements improvements based on the feedback provided in the quarterly service quality questionnaire for the ground service agency to ensure the quality of services.

4. e-Air Waybill & e-Freight

CAL promotes the e-Air Waybill and electronic data exchanges with forwarders, which reduces the operating costs of airlines and forwarders and avoids delays caused by air waybill input errors and missing documents. Printed copies are no longer required during the transportation process, which reduces paper consumption and protects the environment as well. It also helps people protect their health and stop the spread of the virus during the COVID-19 pandemic.

In addition to paperless operations for cargo flights to and from Hong Kong, Singapore, Frankfurt, and the Americas, CAL continued to carry out paperless operations for cargo service to and from Kuala Lumpur, Penang, Tokyo, Osaka, Fukuoka, Nagoya, Amsterdam, etc. CAL also implemented random inspections for EAW shipment (e-Air Waybill shipment without accompanying documents and pouch), forwarding agents would be reminded that printed documents are no longer required if they are still used. We reduce contact in the delivery of printed documents for disease prevention purposes and fulfill our responsibility for environmental sustainability.

5. Apron Mobility (Ramp Operation Digitalization)

Through wireless transmission, all cargo information and loading statuses are instantly transmitted to mobile devices for users to monitor cargo status after palletized from the warehouse and whole loading and unloading operations.

The apron mobile system has been launched since 2017. Starting from August 2018, the apron mobile system has been applied to passenger and cargo flights' loading and unloading operations. Before the launch, GHAs were trained, and applications (APPs) were modified based on test results in order to avoid loading errors and misloading. By using Personal Digital Assistant (PDA) as a channel of communication with GHAs, CAL has reduced the idle time of ramp supervisors and improved cargo agents' productivity.



Loading / Unloading Operation

6. Professional Training

CAL organizes professional training courses, including dangerous goods regulations training / retraining, live animal and temperature-controlled goods regulations training, and heavy (above 10 tons) & over-sized (above 6 meters) cargo and engine transportation training on a regular basis to improve service quality and ensure that goods are carefully managed and professionally handled throughout the transportation process. To transport special goods, CAL has also trained professional handlers and formulated operational regulations to provide safe and professional transportation services. In response to the delivery of the new 777F and A321neo cargo / passenger aircraft, CAL also administered training for employees and agents to upgrade the service quality.



Special Cargo Transportation Service (Parts of Landing Gear)

7. Embargo on Illegal Animals and Plants

CAL supports IATA and UN's Sustainable Development Goals by signing the Buckingham Palace Declaration. CAL has also taken the following four concrete actions to fight against illegal wildlife

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

trade and achieve environmental and ecological sustainability including "expression and demonstration of agreement to tackle the illegal wildlife trade," "information sharing and detection," "practical measures to stop the transportation of illegal wildlife products," and "new mechanisms tackling illegal wildlife trade."

8. Authorized Economic Operator (AEO)

Being an authorized economic operator (AEO) helps CAL stay competitive in expanding business in the international trade supply chain and to cooperate with trading partners. After earning the AEO certification on January 19, 2012, CAL has carried out self-inspections based on safety evaluation items and certification standards every year and applied to the Customs for a field certification and audit every three years. The certification was completed again last year. Since October 2021, the Cargo Sales, Marketing & Service Division has formed a management committee comprising Cargo Sales, Marketing & Service Division, Corporate Safety Office, Human Resources Division, Information Management Division, Administration Division, Cargo Sales & Service, Taiwan, Engineering Division, and Inflight Supply Chain & Marketing Division, to carry out annual self-inspection. The inspection data were submitted to the Customs Administration by the end of the year and they were verified as having met related regulations in the review.



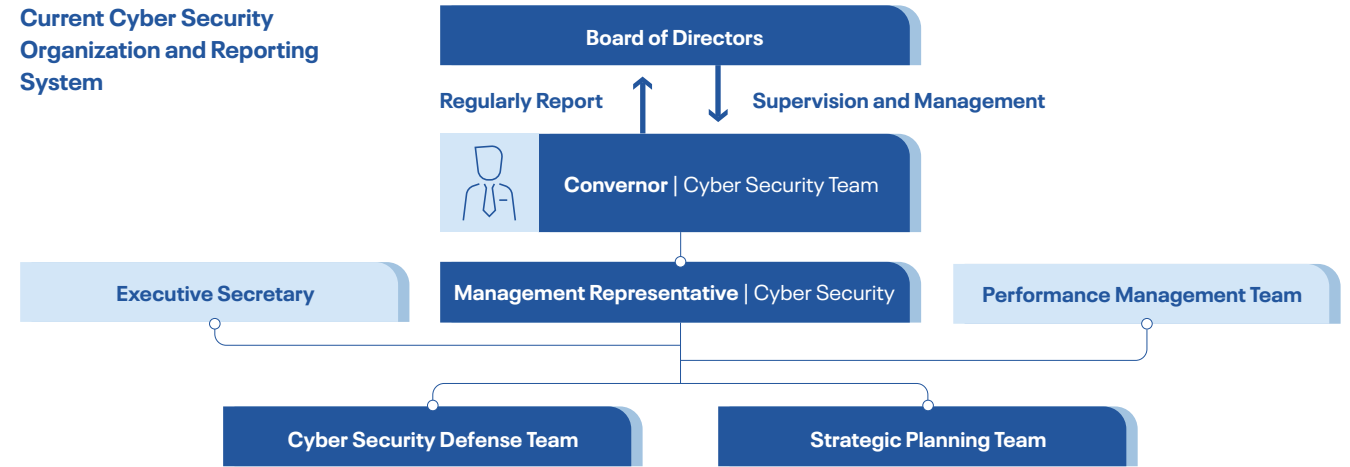
Authorized Economic Operator (AEO) Meeting

2-1-4 Information Security Management GRI 206-1, 418-1

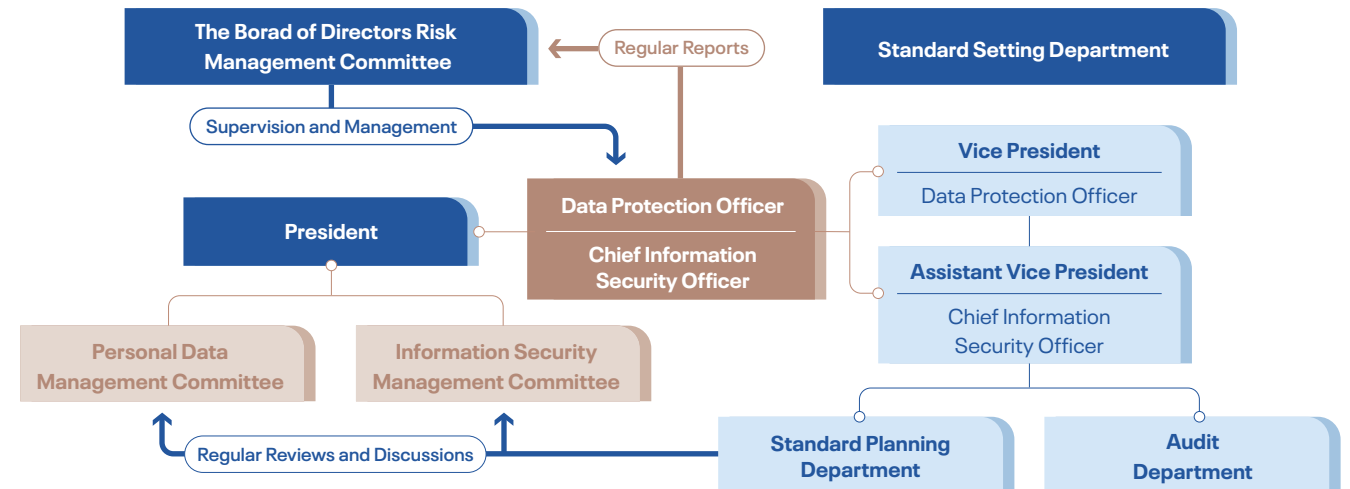
Information Security Framework

CAL IT operations meet the standards of international information security standards and domestic information security regulations. For this purpose, CAL has established the Information Security and Personal Data Protection Division in March 2022 with the Vice President of the Information Management Division as the Data Protection Officer, who leads the Chief Information Security Officer and the personal data and information security team. The Chief Information Security Officer is independent of the information management unit to ensure the independence of information security management. CAL also reports the status of information security management and data protection to the Board of Directors every year. The Company shall establish related information security and personal data management framework in accordance with the new organizational framework and ISO 27701 and ISO 27001 certification. Chairman Su-Chien Hsieh has extensive experience in management and information security. He had served as the chairman of Sabre Travel Network Taiwan Ltd. (Sabre), and is familiar with information security governance. He implements timely monitoring of information operations from an independent and objective perspective.

Current Cyber Security Organization and Reporting System



New Information Security and Personal Data Protection Division and Future Reporting System Proposal



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

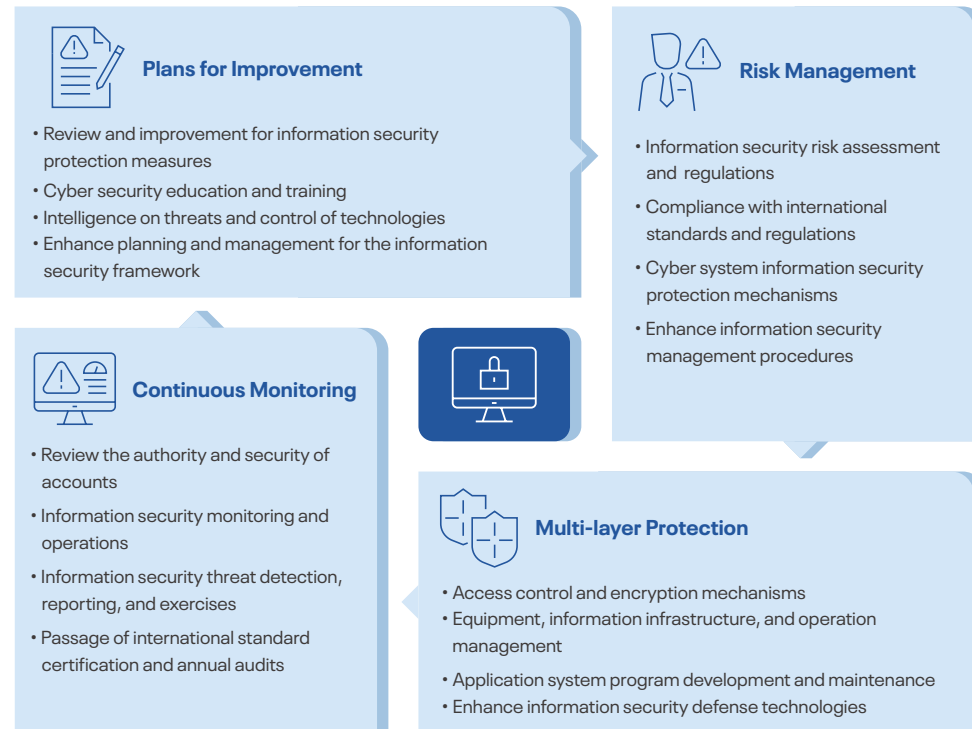
3 Corporate Governance

ESG Data and Appendix

Cyber Security Management

In response to the evolving nature of cyber-attacks, CAL has established and planned cyber security risk management and protection framework for supervision and protection and ensure security in the use of the services.

Information Security Risk Management and Protection Framework



Cyber Security Operation & Maintenance

1. Regular Evaluations and Exercises

CAL conducts risk assessment of information and information and communication systems every year in accordance with the Cyber Security Management Act, and evaluates the cyber security responsibility levels of the core information and communication systems in terms of confidentiality, integrity, availability, and compliance. We also develop a business continuity plan for the core information and communication systems and conduct business continuity exercises at least once every six months for the cyber security and backbone network equipment with the widest impact, to ensure that the Company can rapidly and effectively restore normal operations and minimize potential losses. In addition, we also review and evaluate the business continuity plan to ensure the availability and integrity of the plan.

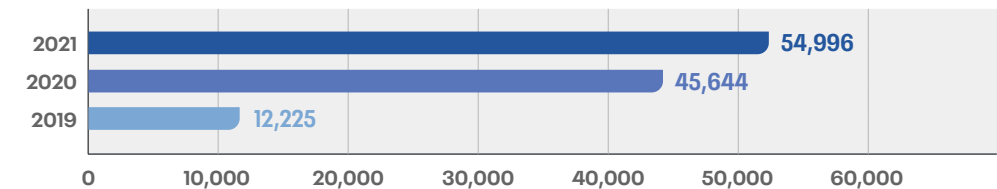
2. Cyber Security Education and Training

Each year, all cyber security personnel receive at least 12 hours of cyber security professional program training or cyber security competence training. All employees must receive at least 3 hours of cyber security training every year. We also organized 5 social engineering exercises this year to strengthen employees' cyber security awareness. The Company has adopted diverse methods for cyber security training and established a clear and effective rewards and disciplinary system to ensure compliance and implementation with the code of conduct for the workplace. Employees who fail to comply with requirements and violate regulations will be penalized based on the severity of the violation, which will be used as the basis for employees' performance evaluation. The Information Management Division conducts self-inspections and compliance assessments every six months. Audits are carried out by the audit unit independently to implement supervision and inspections ensure the operations of overall mechanisms.

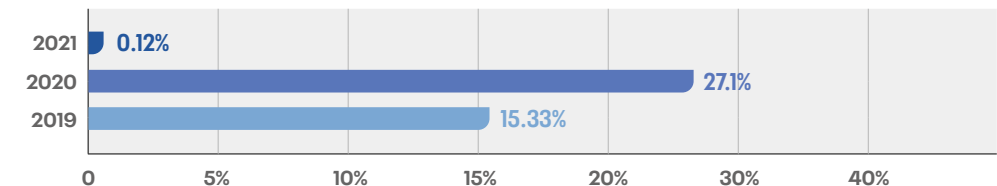
Our 2021 cyber security training focuses on social engineering exercises and phishing mail protection. We sought to increase the cyber security awareness of all employees through frequent training.

In 2021, we conducted 5 unannounced social engineering exercises. The click rate of emails and URLs in the 5th exercise was 0.12% (0.09% in Taiwan, 0.29% in foreign countries, and 0.11% in Mandarin Airlines), which was a significant improvement compared to the results of the four previous exercises at 12.33%, 6.82%, 1.2%, and 0.7%.

Number of Trainees in Cyber Security Education and Training



Social Engineering Exercise Link Click Rate



3. Notification of Cyber Security Incidents

The cyber security incident notification, vulnerability reporting, and response mechanism is initiated based on the level of cyber security incidents to control their impact and implement post-incident recovery. Dedicated cyber security personnel determine whether there is immediate danger and take immediate notification and response measures when necessary. It also notifies units to

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

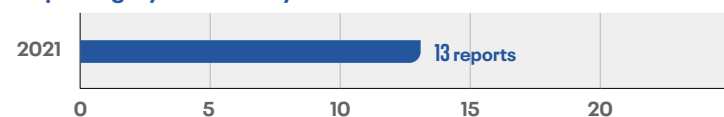
3 Corporate Governance

ESG Data and Appendix

implement preventive measures and share related information in the Corporate Safety Committee and Airline Safety Review Committee. To strengthen emergency response procedures and plans, develops the security incident notification & contingency drill plan at the beginning of each year and completes internal cyber security exercise by the end of each year to ensure the effectiveness of incident notification mechanisms and procedures and ensure the results meet expectations. The Information Management Division established the "Cyber Security Threat and Vulnerability Notification" team in 2021 to provide notifications immediately on different types of threats, assess risks, and rectify errors.

CAL set up a group on the corporate instant messaging platform for reporting cyber security threats and vulnerabilities. In 2021, 13 reports were submitted and several major vulnerabilities were resolved.

Reporting Cyber Security Threats and Vulnerabilities



Notification Flowchart

Cyber Security Certification and Audit

The Company has established a more comprehensive management system to maintain the effectiveness of the certification. The Company implemented the annual Information Security Management System (ISMS) re-inspection for the core ICT systems in 2021 in accordance with ISO / IEC 27001:2013 and Privacy Information Management ISO 27701:2019 Privacy Information Management System (PIMS). It met requirements in international standards and we obtained the certificate in December 2021. CAA conducted an annual cyber security inspection on the Company in August 2021 and there were no discrepancies the inspection results or security measures and procedures that require enhancement. CAL's achievements were thus recognized by CAA. Per examination by the Information Management Division in 2021, neither the monitoring or warning information from the defense system, which detects threats to cyber security, was confirmed to be a security incident caused by virus infection.

International Standards Certification and Audits



Scope: The Company's core cyber security system and server rooms



Scope: The Company's core cyber security system



Response to COVID-19

CAL has further strengthened its data security framework and management system, continuing to refine the multi-layer protection mechanism, personnel education and training, social engineering drills and emergency response drills to raise employees' awareness of data security and establish guidelines that comply with laws and regulations and international data security standards to reduce overall cyber security risks.

In response to the COVID-19 pandemic, the Information Management Division of the Company established the "Office Isolation and Employee Home Isolation Information Operation Response Regulations" in 2020. It also established the "Information Management Division Major Pandemic Response Regulations" and "Application System Operations and Maintenance Major Pandemic Response Regulations" so that if employees in Taiwan and abroad working from home encounter cyber security incidents or other disasters that cause the information system or network to fail, they can immediately report the failure and implement response measures. The Information Management Division regularly inspects firewall records and supervises network usage of VPN connections in accordance with regulations. It also removes accounts without usage records, expired accounts, and accounts of transferred / former employees to reduce cyber security risks.

The Company began enhancing the review of user access authority and device security in 2021 by taking inspection measures such as operating system security and antivirus software code updates to strengthen risk management and block connections from unsafe devices. CAL also conducted an inventory of accounts with remote access for ground service and sales agents of foreign branches to prioritize cyber security and ensure the security of the infrastructure.

2-1-5 Privacy Management GRI 206-1, 418-1

Personal Data and Privacy Protection

CAL is committed to protecting personal data and customer privacy. We fully comply with the Personal Data Protection Act of the Republic of China, General Data Protection Regulation (GDPR), California Consumer Privacy Act (CCPA), and other relevant personal data protection regulations. This is expressly provided in the "Privacy Protection Policy and Statement" on the Company's official website. The applicable scope includes all employees of the Company as well as cases where the Company provides the personal data of a party to specific third parties. The Company shall also require such third parties to abide by the aforementioned "Privacy Protection Policy and Statement". CAL also established operation quality documents to regularly evaluate third-party contractors and audit personal data protection. Please refer to the Company's official website for details.



Privacy Protection Policy and Statement



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

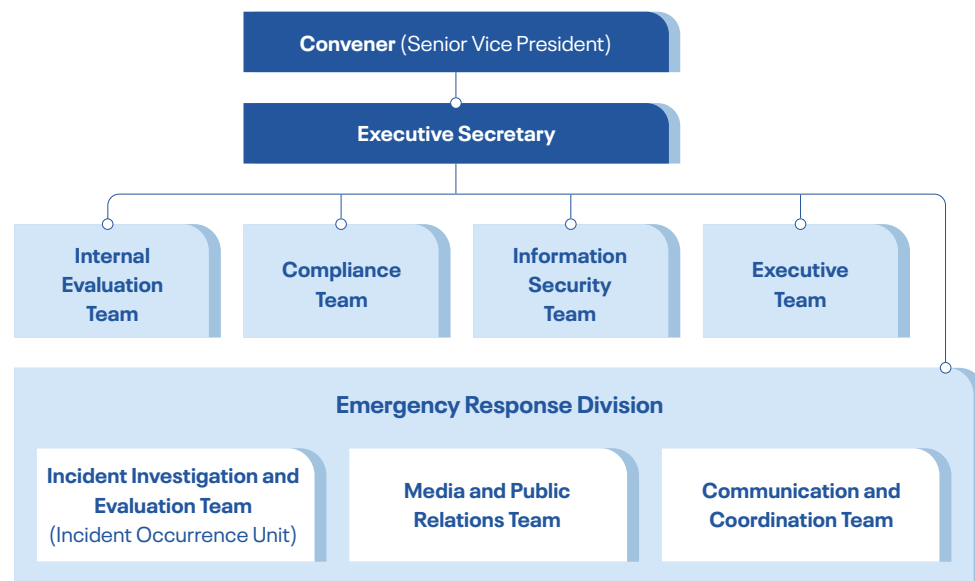
3 Corporate Governance

ESG Data and Appendix

Personal Data Management Framework

To enhance our internal audit and personal data management, we have appointed a Data Protection Officer (DPO). We established the Data Protection & Quality Management Office in 2019 and created a personal data management system to implement, operate, monitor, review, maintain, and improve the Company's personal data protection targets and policies and ensure compliance with regulations. The Company has established a personal data management organization in accordance with the Personal Data Management System. The convener organizes the establishment of the Personal Data Management Committee to take charge of the implementation of the personal data management system. Starting from 2021, the DPO regularly reports business operations to the Board of Directors to ensure that the management understands the current conditions of the Company's personal data management and plans for operations and provides recommendations. However, the Company later followed the requirements of the Financial Supervisory Commission in the Regulations Governing Establishment of Internal Control Systems by Public Companies to reorganize the organization and assign a "Chief Information Security Officer" in March 2022 to incorporate information security businesses and personal data management into one Division. It allows the unit to adopt a more impartial and independent approach to supervise and manage information operations and personal data security in the Company. It will continue to report to the Board of Directors to help the management effectively monitor the execution of information and personal data security operations in the Company.

The organization of the Company's Personal Data Management Committee is shown in the figure. The responsibilities of the units are described in the operation quality documents for the procedures and operations of the Company's Personal Data Management Committee.



Inquiry Channels for Personal Data Rights

The Privacy Protection Policy and Statement on the Company's official website specifies how CAL collects, processes, or uses personal data in a reasonably secure manner within the specific purpose authorized by each customer, there is no secondary use other than the purposes authorized by customers and ensures that the customer can exercise their rights to inquiries, amendment, removal, restriction of personal data use, and withdrawal of consent under the applicable data protection laws and regulations. Where a customer wishes to exercise any of the aforementioned personal data rights, the customer may use the "[Enquiry and Request for Personal Data](#)" online form or the DPO mailbox (DPO@china-airlines.com). The Company shall assign a designated unit to process the case, and respond to the customer's request as soon as possible within the statutory period specified in the applicable data protection laws and regulations.

Personal Data Risk Assessment Mechanisms

In order to implement legal compliance and identify the related risks in processing of personal data, the Company established standard operation procedures to create graphics and document all personal data process. The members of the execution team formulate, review and update the business information framework and personal data inventories for the aforementioned personal data inventory operations each year. They also regularly review the categories of personal data held by the Company, execute risk assessments every year, and propose improvement plans based on the results of the assessment. They execute the plans thoroughly to ensure that they meet the requirements for personal data inventory and management.

Personal Data Incident Response Mechanisms

CAL has prescribed a contingency plan and sound personal data protection mechanisms for stolen, alteration, leakage or loss of data in accordance with the Regulations Governing Personal Information File Security Maintenance Plan and Processing Method for the Civil Air Transport Enterprise to ensure the accuracy and security of personal data. There had been no occurrence of personal data incidents at the Company in 2021. In addition, CAL organizes response exercises each year in accordance with regulations and reviews discrepancies after the exercises for improvements to ensure the effectiveness of operating procedures and strengthen the horizontal communication and response capabilities between units.



Personal Data Accident Contingency Flow

Personal Data Internal Audit and Training

The Company established the "Personal Data Audit and Continuous Improvement Procedures" to review whether the personal data management targets, management procedures, and safety management systems are fully implemented in accordance with plans. We organize internal audits on personal data in Taiwan and overseas operations and submit the results of analysis in

Contents

Preface

1 Sustainability Management

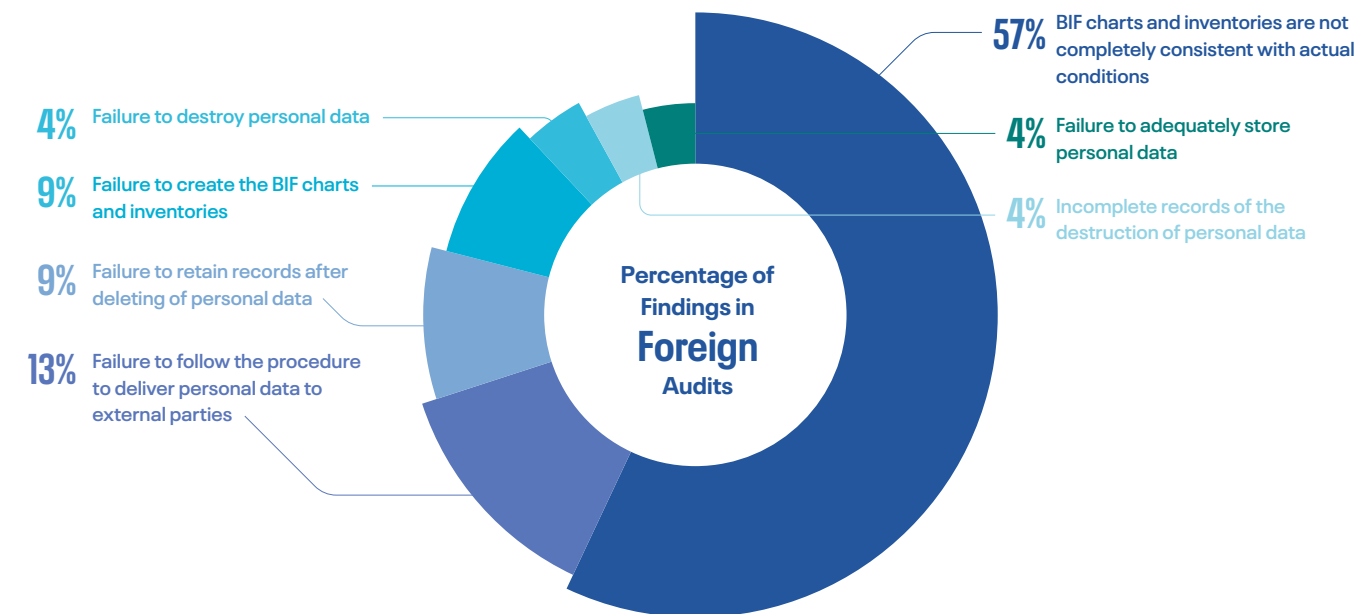
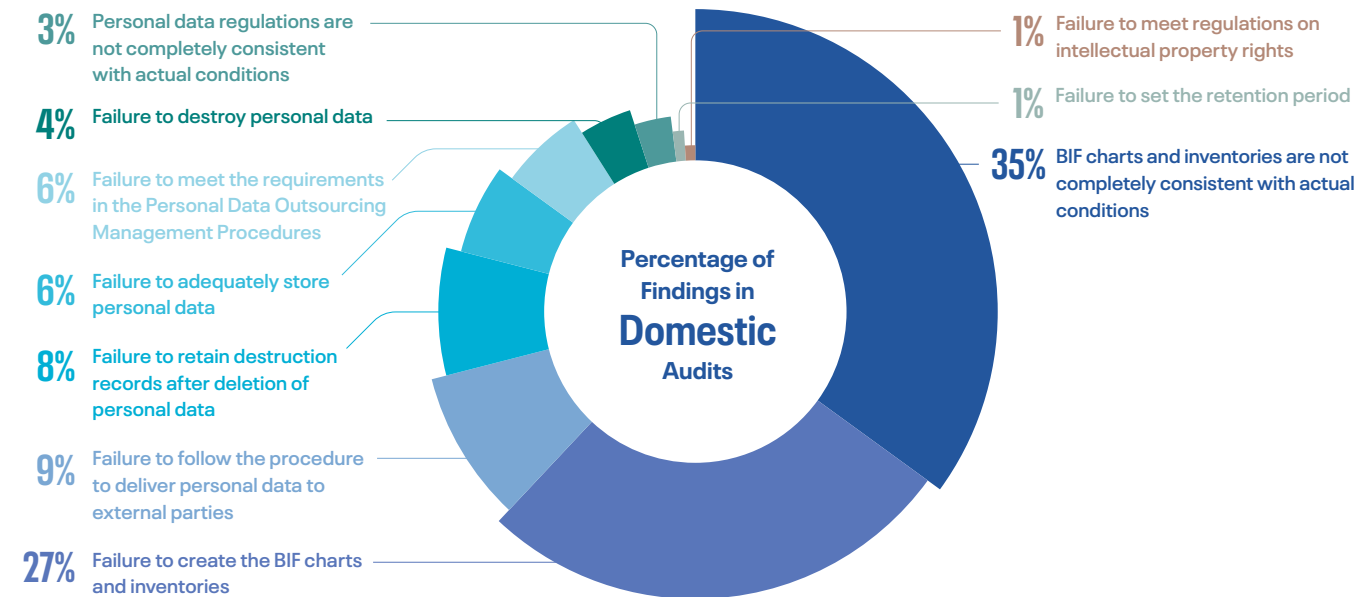
2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

internal audits on personal data in the fourth quarter each year for review by the Personal Data Management Committee to ensure the effectiveness of the personal data management system.



The Company provides all employees with regular training to enhance their personal data protection knowledge and code of conduct. The internal audit team receives training for personal data management and audits. In 2021, the Company organized personal data protection e-learning training for reinstated employees and 136 employees completed the training. We also collected the important recent personal data incidents, information on new regulations, and key personal data management requirements quarterly to issue a newsletter of "Personal Data Protection" which is sent to all employees to share latest information and case studies regarding personal data.



Privacy Protection Policy and Statement



CAL's Personal Data Protection Milestones in 2021

1. Introduce the concept and process of personal data protection to overseas branches
2. Completed personal data inventory, internal audit, and risk assessment across divisions / departments in Taiwan and foreign countries
3. Issued quarterly "Personal Data Protection" newsletters as personal data protection education for all employees
4. Organized annual contingency drills on personal data incidents
5. Held the annual personal data management review meeting



Annual Personal Data Incidents

1. Internal: 0
2. External (leak of customer data): 0



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Future Plans

Flight Safety

1. Renewing Flight Safety Certifications

After obtaining the IATA Operational Safety Audit (IOSA) certification in 2005, CAL has participated in reevaluation every two years in accordance with IATA regulations to ensure flight safety. The Company passed the IOSA reevaluation for the tenth time in 2021. Due to the pandemic, the reevaluation was a comprehensive inspection performed through a remote audit. However, as the IOSA Remote Audit certificate is only valid for one year, the Company will organize the eleventh IOSA Renewal Audit this year (2022) to continue to meet the highest international safety standards and offer passengers high-quality and reliable services.

2. Routine Response Exercises for Abnormal Flight Operations

CAL will continue to enhance the capacity for emergency response of aircraft control personnel and organize response exercises for different weather conditions and default airport anomaly operations to enhance their professional competencies. We strengthen their capacity for emergency response to maintain the punctuality rate of flights, reduce the Company's losses, protect the Company's interests, and provide high-quality services in aircraft operations.

3. Improving Weather Forecast Effectiveness and Enhancing Resilience to Abnormal Flight Operations

The Company signed a contract with Weathernews Inc. (WNI), a Japanese weather information company, for the purchase of an exclusive early warning system for volcanic ash clouds. The objective and accurate third-party information is used as the basis for dispatching and assigning flights. We also continue to enhance the professional weather knowledge of flight management personnel to ensure flight safety.

4. Improve Internal Communication Efficiency

The Company makes full use of its internal communication system to enhance the delivery of flight information and changes to all units. We established a communication platform on Team+ at the beginning of the pandemic to quickly announce flight information and changes to all units.

Passenger Service

1. Enhancing Mobile Devices and Official Website Services

We will launch more user-friendly APPs, website functions and self-service initiatives online.

2. Cabin Management System Upgrade and CRM

To effectively monitor flight and important passenger information and increase overall customers' satisfaction, we have upgraded the Cabin Mobile Service Management System (iCS 2.0) and

incorporated special remarks and other basic information of passengers and flights. The data is processed through backstage management and screening and the CRM system uses big data analysis to convert the data into effective information which can be used by related units.

3. Upgraded Airport Services

To promote touchless services, reduce contact between airport personnel and passengers, and increase the security control level, the Company activated facial recognition boarding services with airport equipment in airports in the Americas such as San Francisco (SFO) and New York (JFK). Passengers can use the facial recognition system for boarding. If passenger data cannot be accessed by the facial recognition system, passengers can still obtain assistance from personnel on duty at the gate.

4. Continue to Implement Passenger Satisfaction Survey during the Pandemic to Maintain Service Quality

Cargo Service

1. Adjusting Capacity Flexibly in Response to Market Needs

CAL will continue to develop the network adjustment plan and optimize crew scheduling based on market needs and the development of the pandemic to improve labor-management relations.

2. New Aircrafts Equipped with Next-Generation "Cargo Loading System" Reduce Operation Time, Increase Cargo Load, and Maximize Revenue from Cargo Service

The delivery of the A321neo passenger aircrafts also enhanced CAL's competitiveness in regional cargo services. We opted for the cargo loading system in the belly of the aircrafts that can be flexibly adjusted to use pallets for loading cargo. It effectively reduces the need for manual labor, shortens the ground service time for flights, protects the cargo and passenger baggage. We also added heavy cargo sources that can be loaded and unloaded with greater ease. We support the requirements of different airports and adjusted the belly of the aircraft to bulk transport to increase flexibility in aircraft dispatch. Compared to the 738, the new A321neo aircrafts' cargo load is increased by 10-20%. They will benefit current operations which are focused on cargo service.

3. Continuously Promoting Premium Air Freight Cargo & Customized Service

With extensive cargo handling experience and 777F features, CAL aims to deliver more precision equipment, aviation supplies, temperature-controlled cargoes, and other high-priced cargoes, add more value to sales with excellent service, and promote revenue diversification.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Information Security

Cyber Security Certifications and Related Planning

We plan to obtain the PCI DSS, ISO 27001:2013 Information Security Management System, and ISO 27701:2019 Privacy Information Management System certification before the end of 2022 to ensure the validity of our credit card receipt system and privacy protection, reduce cyber security risks, and protect passengers' rights and interests. [segdelete] [segdelete] CAL references the guidelines in the International Civil Aviation Organization (ICAO) (Doc. 8973) and incorporated flight safety, flight security, and flight convenience into the tiered and classification assessments of the information system in early 2022 to strengthen the protection of information system. According to the official letter from Taiwan Stock Exchange Corporation (Tai-Zheng-Shang-1 No. 1101807121), the Company is classified as a level 1 listed company and we therefore plan to set up a dedicated cyber security unit and related personnel in accordance with regulations before 2022 Q2.

Privacy Management

1. Personal Data Management System

To ensure compliance with personal data protection laws and regulations, the Company plans to introduce the Personal Information Management System (PIMS) in 2022 to improve the Company's personal data protection regulations and meet the regulatory requirements of different countries. We also support Article 42 of the GDPR to "encourage the establishment of data protection certification mechanisms for the purpose of demonstrating compliance with personal data protection. Effective personal data certification can also be adopted as a requirement for reducing penalties imposed by the competent authority."

The Company continues to comply with government policies during the pandemic and adopted various preventive measures and guidelines for workplace safety and sanitation (e.g., body temperature measurement and access control) to ensure that all measures comply with the personal data regulations. We shall adhere to applicable personal data laws and regulations to use personal data within the necessary scope for specific purposes to legally collect, process, and use customers' personal data. We shall fulfill data security maintenance obligations to reduce the risks of damage due to personal data leaks.

2. Personal Data Protection Audit

Although business travel activities for audits are limited during the pandemic, the CAL continued to implement annual personal data protection audits for all domestic and overseas units to ensure the effectiveness of the Personal Data Protection System. For overseas branches, the Company introduced the remote audit mechanism by using the telephone, email, communication software and video conference to carry out the audit activity since 2020.



Zero-COVID Plan

Background Information

The number of confirmed cases of COVID-19 outbreak in Taiwan increased in May 2021. As the source of the community infections was unknown, certain crew members were infected, and a few crew members violated regulations on self-health management, there was a public uproar and media reports focused on the examination of relaxed regulations for crew members and home quarantine.

CAL's Action / Clarification

CAL issued several press releases to reiterate CAL's rigorous implementation of disease prevention management measures for crew members and full cooperation with the contact tracing implemented by the Central Epidemic Command Center. We also explained that there had been no evidence of crew members bringing the virus back to Taiwan from foreign countries to clarify false media reports. The Ministry of Health and Welfare later clarified that the domestic outbreak in May and confirmed cases of infections of crew members were independent events. For a very small number of crew members who had violated regulations during the self-health management period, even if there is no evidence proving that their violation resulted in a spread of the virus to others, CAL still imposed heavy penalties on these crew members in accordance with the employee reward and punishment regulations.

Improved Measures

CAL supports the Central Epidemic Command Center in the completion of the "Zero-COVID Plan" and "Zero-COVID Plan 2.0" in separate stages to accelerate the vaccination of crew members and establish a disease prevention protection network. We also continued to adopt the highest standards for all disease prevention measures in every step. The explanation regarding the pandemic has been continuously updated on the CAL website to strengthen the Company's image for improved disease prevention. We hope the public can provide more support for our pilots and cabin crew.

2-2

Human Resources

HIGHLIGHTS



105 people with disabilities employed

CAL was the only company in the industry to receive the Golden Wingspan Award. CAL employed 105 people with disabilities.



TWD 13.88 billion in salary and benefits

Invested TWD 13.88 billion in salary and benefits.



99.41% union participation

99.41% of employees participating in labor unions.



Employee health examination superior to regulatory requirements

The items and frequency of health examination offered by the Company are superior to regulatory requirements.



Declaration for joining "TALENT in Taiwan"

CAL joined "TALENT in Taiwan" to jointly promote sustainable talent development with "CommonWealth Learning", "Cheers", and many other companies in Taiwan.

Management Approach GRI 103-1, 103-2, 103-3

Topic of Concern

- Labor Relations and Communication
- Sustainable Employment and Talent Attraction
- Occupational Safety and Health Management
- Human Rights

Importance of Material Issues

We view our employees as family. We are always willing to communicate with respect and strive to reach a mutual understanding through negotiation. We endeavor to create a more harmonious work environment based on an equitable, cooperative, and mutually respectful relationship. In such a work environment, labor and management reach a consensus through open, transparent negotiations and are more willing to communicate on collective agreement issues.

Commitment and Long-term Goals

• Commitment

We view our employees as our most valuable assets. CAL has improved and optimized working conditions and the work environment to establish a safe and growing workplace. CAL respects each individual labor union and communicates on their stated demands with empathy, views the labor rights of every employee as our first priority, and gives the same level of respect and resources to all labor unions with neutrality. Apart from regular labor-management meetings held by the Head Office and the China Airlines Employees Union (CAEU), a number of functional committees formed by management and CAEU have been established. CAL follows up and reports the results of follow-ups in the following meetings. CAL is dedicated to maintaining harmonious labor-management relations through open, efficient channels of communication, hoping that both the management and employees can work together to achieve equality and reciprocal outcomes.

• Long-term Goals





Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

2023

1. Organizing eight insider sharing sessions to provide an opportunity for cross disciplinary networking
2. Optimizing CAL's aviation management talent training mechanisms
3. Percentage of female managers reaching 24.75%

2025

1. Completing the establishment of all internal online training materials for all specialties
2. Establishing the optimal learning path for CAL's aviation management talent pool
3. Percentage of female executives reaching 25%

2030

1. Applying to Taiwan's aviation talent development
2. Promoting Taiwan's aviation talent development
3. Percentage of female managers reaching 27%

Objectives and Plans

Issue	KPI	2021			2022 Objectives
		Objectives	Performance	Achievement	
Occupational Safety and Health	Reduce the Frequency-Severity Indicator (FSI) by 5%	FSI 0.42	FSI 0.22	100%	FSI 0.42
	Pass the certification of occupational safety-related management systems	Passing ISO45001 and CNS45001 certification	Passed	100%	Pass the certification of ISO45001 and CNS45001 review
Labor-management Relations	Convene labor-management meetings	4 times	6 times	100%	4 times
Labor Rights	Organizing training on sexual harassment prevention	1 time	1 time	100%	1 time

Note 1: Frequency-Severity Indicator (FSI) = $\sqrt{((\text{Disabling Injury Frequency Rate,FR}) \times (\text{Disabling Injury Severity Rate,SR}) \div 1,000)}$
 Note 2: 2018-2020 averages in the air transport industry published by the Ministry of Labor: FR=3.39 / SR=54 / FSI=0.43

2-2-1 Human Rights Management Framework GRI 406-1, 412-1

To enforce the idea of human rights, CAL has established its human rights policies and related measures based on the UN Guiding Principles on Business and Human Rights, international trends, and local laws / regulations. CAL's human rights policies apply to CAL Group members and suppliers. The Human Resources Task Force under the Corporate Sustainability Committee is responsible for the management of human rights management in order to enhance CAL's ability to respond to human rights risks in the value chain.

Unit in Charge

Corporate Sustainability Committee — Human Resources Task Force

Management Mechanisms

- The meeting of Corporate Sustainability Committee, at least twice every year
- The Human Resources Task Force reports to Corporate Sustainability Committee, every quarter
- A labor-management meeting, every quarter on a regular basis
- The meeting of Occupational Safety and Health Committee, every quarter on a regular basis
- A personal information protection management review meeting, every year on a regular basis

Grievance Mechanism

- **Employee Relationship Department: Human Resources Division —**
 E-mail: wecare@china-airlines.com



Stakeholder Contact



China Airlines Human Rights Policy

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Regulations and Procedures on Human Rights



Employee Code of Conduct

Employees should support company policies on human rights, fairly treat and respect for every employee, avoid infringing on the rights of others or become accomplice to human rights abuses. We not only implement policies to protect the human rights of employees, but have also established a management mechanism to ensure employee care. We do not use forced labor. We do not adopt race, gender, age, family, political affiliation or religious beliefs as the criteria for employee assignment, performance evaluation or promotion.



Human Resource Manual / Employee Complaints Regulation / Sexual Harassment Complaints and Disciplinary Actions Regulation

- Proclaimed employee human rights protection includes basic stipulations, freedom of employment, humane treatment, and prohibition of discrimination or sexual harassment.
- In November 2021, the Company organized onsite training courses for sexual prevention and 104 employees completed the training.



Sustainable Development Best Practice Principles — Child Labor Prohibited

Hiring people younger less than 16 years old is strictly prohibited to fully compliant with legal minimum age for employment. To safeguard the physical and psychological health and safety of employees whose age are below 18, hazardous assignments are strictly prohibited.



Anti-discrimination Policies and Courses

Front-line staff must attend non-discriminatory policy courses for boarding passengers with physical and mental disabilities to ensure the interests of passengers.



Supplier Code of Conduct

Human rights standards were specified in the Supplier Code of Conduct include:
1. Prohibition of child labor / 2. Anti-discrimination / 3. Remuneration and working hours / 4. Freedom of labor / 5. Respect for freedom of assembly and association, and the right to collective agreement



In addition to complying with CAL Group's human rights policies, Mandarin Airlines and Tigerair Taiwan have incorporated management measures for equality and anti-discrimination and whistle-blowing channels into their regulations and organized training on a regular basis. In 2021, Mandarin Airlines organized a "Mandarin Airlines and Me" workshop on sexual harassment prevention, and one session was held and attended by 10 employees. From December 2021 to January 2022, Tigerair Taiwan organized sexual harassment prevention training for all employees including one training session for the four major plans for labor health protection.

Procedures for Identifying Material Human Rights Issues



Identify the Framework Based on CAL Human Rights Policy



Human Resources Task Force Identifies and Reviews Human Rights issues of CAL Value Chain



Corporate Sustainability Committee Verifies Identified Issues



Unit in Charge Develops Improvement Measures



Human Resources Task Force Implements Following Improvement



Disclose Identification Results and Improvement Actions

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

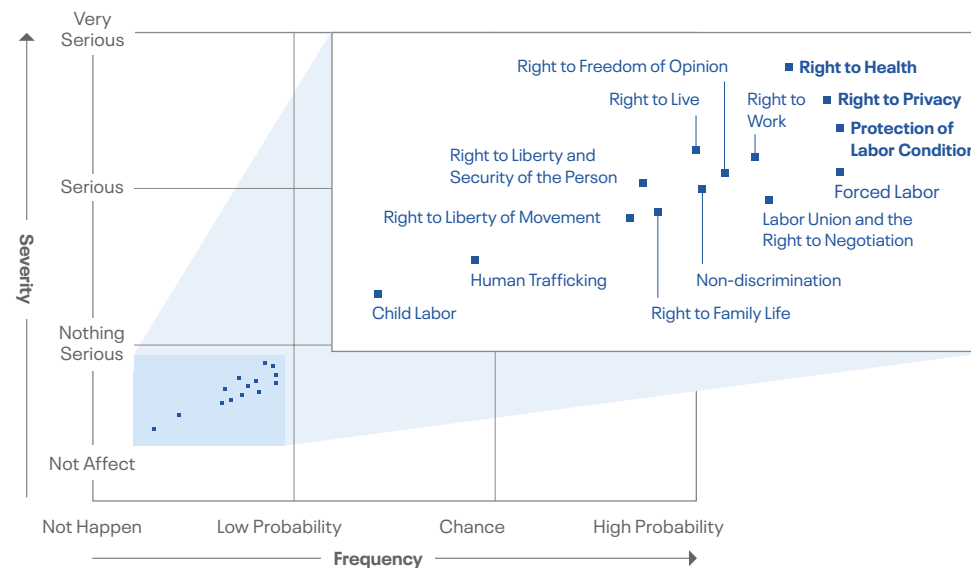
3 Corporate Governance

ESG Data and Appendix

Human Rights Risks Identification Results

CAL has identified human rights risks independently in accordance with the United Nations Guiding Principles on Business and Human Rights. The Human Resources Task Force first selects material human rights issues of the year through internal and external stakeholder engagement and issues risk identification questionnaires to stakeholders in the entire value chain (there were no material mergers & acquisitions in 2021). In 2021, it analyzed the material human rights risk issues of the year based on 218 valid questionnaires, while reviewing the occurrence nodes of human rights risks and material risk issues throughout the value chain in order to perform human rights due diligence and develop mitigation and remedial measures. The overall human rights risk level for CAL in 2021 was low, but we are still responding to three relatively major risk issues, including the right to privacy, right to health, and the protection of labor condition.

Material Human Rights Issues Identified



Mitigation and Remedial Measures for Material Human Rights Risks

In order to ensure the integrity of the human rights framework, CAL, in accordance with the United Nations Guiding Principles on Business and Human Rights on due diligence, worked with external consultants to develop and implement a human rights due diligence mechanism to review the mitigation and remedial measures for material human rights risk issues. Based on the three material risks identified in 2021, except that the protection of labor condition does not apply to the downstream of CAL's value chain, CAL has launched three major risk mitigation and remedial measures at each node of the value chain for various groups, including general, disabled, or minority employees in the upstream and midstream as well as general, children, disabled, and minority

customers in the downstream. CAL also adapted the measures for all locations of operations across the globe based on the regulations of the host countries. Relevant information is described below. For details, please refer to the appendix [Management of Material Human Rights Issues in 2021](#).

The human rights risk management in CAL's entire value chain is described as follows:

Upstream (Supply Chain Partners)

Regarding the human rights management of upstream supply chain partners, CAL has gradually established a risk management mechanism of the sustainable supply chain since 2015. The management mechanism includes risk identification, on-site review, and tracking and improvement, while the management dimension includes governance, environment, society, and the general aspect. Among them, the human rights risk issues are the main management focus of the aspect of society. CAL has launched human rights issues that need to be managed in accordance with the Sustainable Supply Chain Management Policy and Supplier Code of Conduct. In addition to issues, such as child labor, discrimination, and freedom of association, the protection of labor condition and occupational safety and health issues related to the right to health are all the focus of CAL's evaluation and audit. As for the right to privacy, it is related to the information security management issues in the general aspect, which is also an existing management item in CAL's sustainable supply chain risk management mechanism. Each year, CAL adopts a periodic sustainable supply chain management mechanism to keep abreast of the management situation of various human rights risk issues by supply chain partners and their mitigation and improvement approaches in the case of high-risk situations. In 2021, in response to the COVID-19 pandemic, CAL required its suppliers to provide a healthy, safe, and hygienic workplace to promote overall safety for the workforce. For more sustainable supply chain management measures, please refer to [Chapter 2-3-2 Sustainable Supply Chain Management in the Cooperation section](#) of this report.

Midstream (CAL's Operations)

In terms of employee privacy management, the Company has set up a "personal information management system;" By implementing the maintenance and management of personal data files, the impact of personal data file violations can be reduced. With regard to the management of employees' right to health, CAL has set up the Occupational Safety and Health Committee and introduced the ISO 45001: 2018 and TOSHMS occupational health and safety management systems to identify and control occupational accident risks in the workplace based on the level of the risks. In response to the COVID-19 pandemic in 2021, the Company set up a series of disease prevention measures (including vaccination, use of personal protective equipment, support for home quarantine, strengthening sanitation and disinfection of the environment, alternate employee shifts, and track health conditions) to ensure employees' safety and health at work. In terms of the protection of labor conditions, we focused on providing conditions superior to regulatory requirements and industry standards. We convene meetings of committees with labor participation and focus on continuous improvements to ensure employees' labor rights. For more details on the management measures

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

of employees' right to health and labor conditions, please refer to [Chapters 2-2-2 Recruitment and Retention](#), [2-2-4 Employee Rights](#), and [2-2-5 Healthy and Safe Workplace](#).

In addition to the material human rights risks identified in 2021, CAL has always maintained an open attitude toward employees' membership in the union. As each CAL employee is an ex-officio member of the corporate union, they can freely participate in various union affairs or be directly selected as leaders in the union. CAL regularly holds negotiation meetings with the Employees Union to listen to the voice of the union; employees can also join occupational unions outside the Company according to their own wishes, and CAL maintains an equally open attitude toward employees' membership in external occupational unions and does not resist substantive negotiations with any union.

CAL has established diversified communication channels, including regular labor-management negotiation meetings, an employee care mailbox, a sexual harassment mailbox and associated grievance hotline, the "Speak Your Mind" Employee Portal, and Team+, an internal messaging software so that employees can put forward their opinions or suggestions. In addition, CAL has formulated the Employee Grievance Regulations. When employees' rights and interests are infringed or handled improperly, they can file a complaint in accordance with the regulations. If they disagree with the results of the complaint, they can also re-file the complaint to protect their rights. In 2021, CAL employees filed 15 complaints which consisted mainly of punitive measures and illegal infringement at the work place. All complaints have been addressed and the cases were closed.

Employee Grievance Cases from 2019 to 2021

Item	2019	2020	2021
Performance Review	1	4	1
Concessional Flight Tickets	2	0	0
Leave of Absence	0	2	3
Disciplinary Actions	1	1	6
Occupational Disasters	5	1	0
Salary	0	0	1
Illegal Infringement at the Work Place	0	0	4
Total	9	8	15

Employee Grievance

CAL

Employee Grievance

E-mail: wecare@china-airlines.com

Grievances against Sexual Harassment

TEL: (03) 399-8922

E-mail: SHC@china-airlines.com



Mandarin Airlines

Employee Grievance / Grievances against Sexual Harassment

TEL: (02) 2514-2050

E-mail: SHC@email.mandarin-airlines.com



Tigerair Taiwan

Employee Grievance

E-mail: talktome@tigerairtw.com

Grievances against Sexual Harassment

TEL: (02) 7735-6930

E-mail: talktome@tigerairtw.com



We pledge ourselves to put an end to sexual harassment. Continuing education on sexual harassment prevention is conducted annually for new recruits and existing employees, and course materials are available for employee access on the CAL website. CAL also puts up posters in duty rooms, communicating definitions and types of sexual harassment, as well as grievance channels, to front-line employees. Employees can file sexual harassment grievances via the sexual harassment mailbox, hotline, or e-mail account. If the sexual harassment perpetrator is a CAL employee, the Human Resources Division will initiate an investigation and convene a meeting of the Complaint Review Committee within 7 days after receiving the grievance. No less than half the members of the Complaint Review Committee are female. If the incident is defined as a case of sexual harassment, disciplinary actions or other measures will be taken; and, depending on each incident, psychological counseling may be arranged for both the perpetrator and the victim. If the perpetrator of the incident is not a CAL employee, CAL will assist the victim with legal aid. Mandarin Airlines has published a statement about the ban on sexual assault and harassment and posted information on sexual harassment prevention on the EIP website. An annual report on grievances regarding sexual harassment is made by the end of every year for follow-up. Besides Mandarin Airlines, Tigerair Taiwan also takes sexual harassment seriously. Every new employee of Tigerair Taiwan is required to complete the training course on regulations concerning sexual harassment prevention and grievances through the regulations which disclosed on the employees' public portal.

In 2021, 3 sexual harassment cases were filed in CAL and penalties were imposed in accordance with government regulations and internal regulations of CAL. There were no cases of sexual harassment in Mandarin Airlines/Tigerair Taiwan.

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

Grievances Against Sexual Harassment from 2019-2021

Item	2019	2020	2021
Number of Grievances	2	0	3
Number of Filing	1	0	3
Category	Improper behavior	-	Improper behavior
Outcome	Administrative disciplinary actions	-	Administrative disciplinary actions

Downstream (Customers)

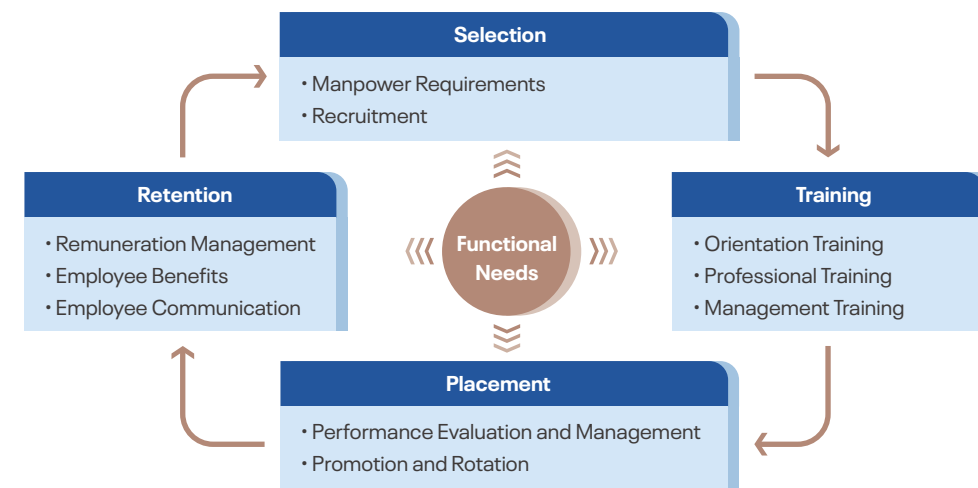
For customer privacy protection, CAL has hired an external professional consultant team to serve as the consultant for CAL's personal information protection mechanism, introduced the personal information management system, and set up the Personal Information Management Committee for maintenance and management of personal data files. Each division/department of CAL has also completed personal information risk assessments in 2021 and formulated the Privacy Protection Policy and Statement regarding the collection, use, acquisition, or change of customers' personal data, revision of privacy protection/security statement and commitment to maintaining confidentiality of information, which are all publicly disclosed on the Company's official website. Regarding the customers' right to health, CAL has long been aiming at zero flight accident. As early as since 2007, it has implemented the "safety management system" to ensure and improve the safety level of its products and services through risk identification as well as analysis and management. CAL also has a "Flight First-Aid Advisory System," which allows customers to obtain professional medical advice if they are feeling unwell during check-in, boarding, or flight. In response to the COVID-19 pandemic in 2021, a series of preventive measures have been implemented from check-in to arrival at the destination to protect passengers' health. These measures include requiring passengers to wear masks throughout the flight, maintaining social distances, adjusting flight arrangements, and adjusting the in-flight catering to meet passengers' dietary needs. For more management measures to ensure customers' right to health, please refer to [Chapter 2-1-1 Flight Safety in the Trust section](#) of this report.

2-2-2 Recruitment and Retention GRI 102-8, 202-2, 401-1, 405-1

Human Resource Management System

The Company recruits and selects employees according to the needs of human resources and the duties required. The recruited employees receive preservice training based on their duties and take up their posts after passing pre-service training (continuous on-the-job training is required after taking up their posts). Their performances will be evaluated on a regular basis. According to the regulations, outstanding performers will be rewarded or reported for promotion, and appropriate rotations will

be arranged. At the end of each year, employees will be rewarded based on Company's business performance; and the Company has also established favorable employee benefits and multiple channels of communication. CAL regularly conducts employee satisfaction surveys, then reviews feedback and makes improvement accordingly in order to increase employee retention willingness.



Workforce Structure of CAL Group

As of the end of 2021, the total number of employees of CAL, Mandarin Airlines, and Tigerair Taiwan were 10,885, 874, and 646, respectively. The number of employees employed by the three airlines is in compliance with the regulations.

Refer to [Detailed Workforce Structure Tables in the Appendix](#)

Category									
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Full-time Employees	10,753	5,591	5,162	874	417	457	646	289	357
Contracted Employees	132	34	98	0	0	0	0	0	0
Total	10,885	5,625	5,260	874	417	457	646	289	357

Note: The total number includes 77 indigenous employees (males 39 and females 38) and 105 disabled employees (males 73 and females 32).

Note: The total number includes 9 indigenous employees (males 0 and females 9) and 4 disabled employees (males 2 and females 2).

Note: The total number includes 6 indigenous employees (males 3 and females 3) and 5 disabled employees (males 2 and females 3).

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

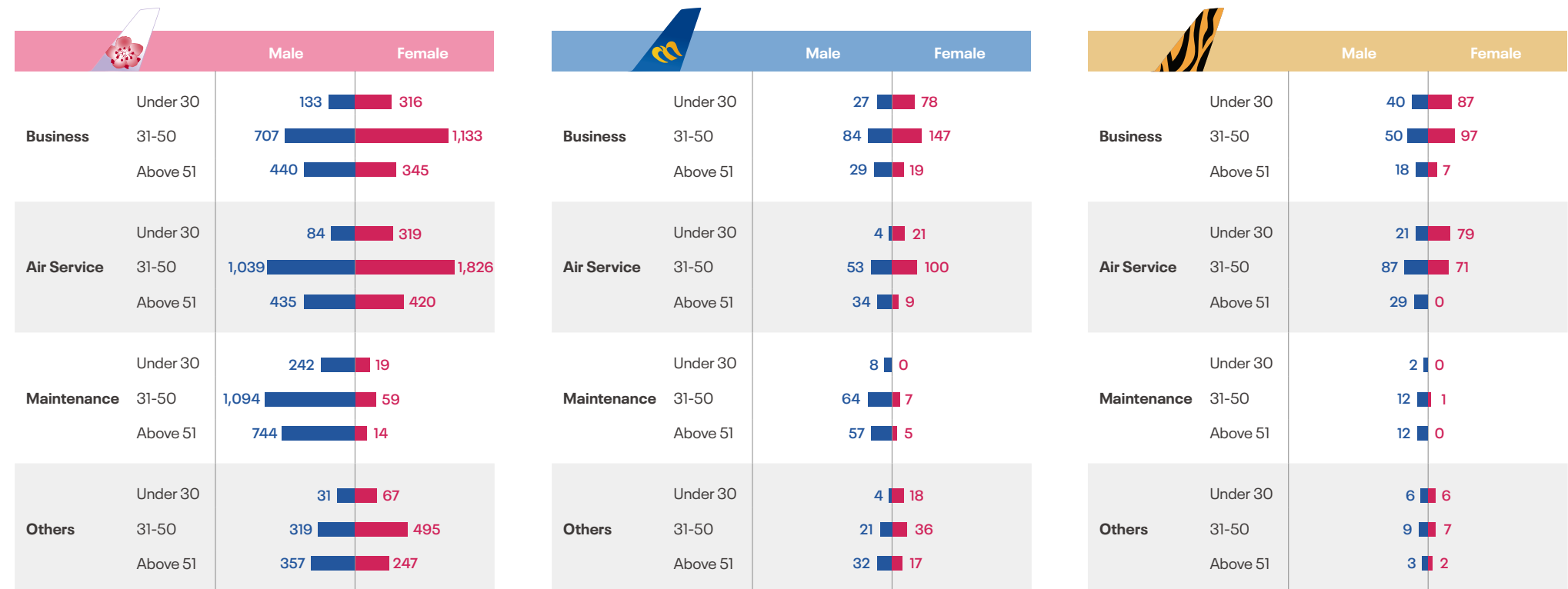
ESG Data and Appendix

Gender Equality and Diversity

We place great importance in gender equality. In 2021, female employees of CAL accounted for 48.32% of the total CAL workforce and 27.82% of all managerial positions were held by females. At Mandarin Airlines, female employees accounted for 52.29% of the total workforce, and 21.21% of the managerial positions were held by females. At Tigerair Taiwan, female employees accounted for 55.26% of the total workforce, with female managers representing 42.68% of all managerial positions. Due to the nature of the aviation industry, CAL has a higher demand for professionals in certain fields of expertise, leading to a male / female gap that is common in society (detailed [Workforce Gender Diversity Target tables](#) in the Appendix). CAL is committed to providing a comfortable work environment that is conducive of balanced career development for all employees, regardless of gender. In order to safeguard the well-being and right to work of female employees, when a female flight attendant is pregnant, she may apply for unpaid leave or request a transfer to ground services. Upon completion of maternity leave, she may then apply to resume her duties as a flight attendant. In addition, two breastfeeding rooms have been set up at CAL Park for female employees to use at any time. We also provide our male employees benefits that are better than required by the Act of Gender Equality in Employment. A male employee may apply for 5-day paternity leave with full pay during childbirth. In addition, to help our employees achieve work-life balance, CAL has signed agreements with 10 daycare centers and kindergartens in 2020-2021 to provide special discounts for CAL employees.

CAL values diversity in the workforce. In 2021, CAL employed 77 (0.71%) indigenous employees and 105 (0.96%) employees with disabilities. In addition to our commitment to expanding employment among indigenous people, we have employed staff with disabilities at a higher proportion than prescribed by law since September 2015. CAL received the Excellency Award at the Golden Wingspan Awards in 2016. We have redesigned job descriptions for employees with disabilities with a focus on improving working conditions and making adjustments to job requirements and career development. We also provide shuttle buses and regularly-scheduled health examinations for our employees with disabilities. In addition, we have signed long-term service contracts with visually impaired massage therapists to provide employees with free on-site massages, thereby providing job opportunities for the visually impaired and enhancing our employees' health at the same time.

Workforce Diversity of CAL Group in 2021



- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

Local Employees

The flight network of CAL spans across the globe, and a large number of job opportunities are available. This results in contributions to local employment and economic development. About 88.04% of all CAL employees are based in Taiwan. The composition of CAL's international employees includes foreign pilots from 25 countries, and flight attendants from Vietnam, Japan, and Thailand. We also employ local employees at our 154 destinations cities in 29 countries around the world. CAL endeavors to provide a friendly work environment for our international employees, with equal opportunities and benefits to our Taiwanese employees.

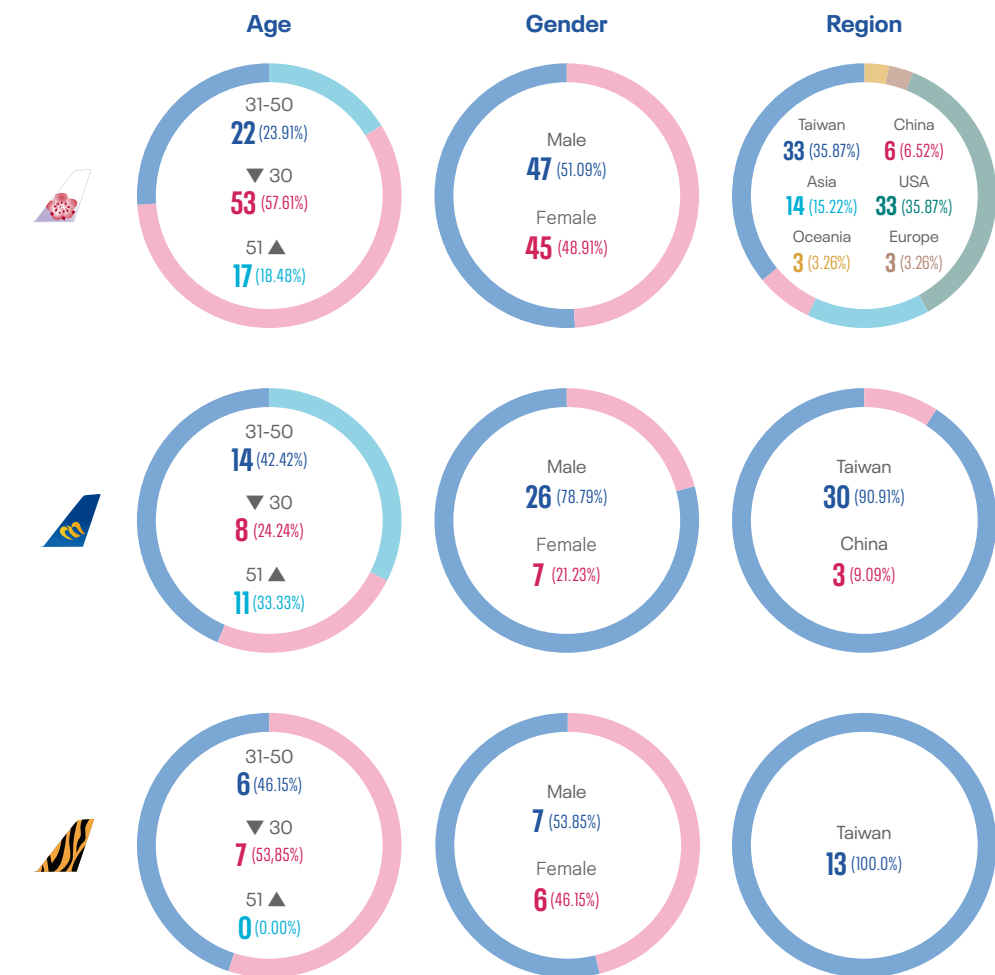
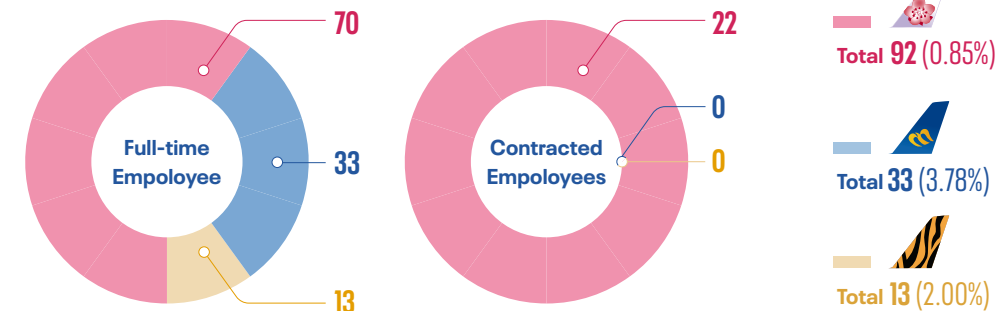
Local Employment of CAL Group in 2021

Company	Region	Employees	Management
	Taiwan	98.91%	100.00%
	China	97.52%	47.22%
	Asia	92.50%	52.44%
	Americas	64.32%	33.33%
	Europe	42.17%	26.32%
	Oceania	65.63%	25.00%
	Taiwan	100.00%	100.00%
	China	90.77%	13.85%
	Taiwan	97.22%	100.00%
	China	100.00%	100.00%

Recruitment

Due to CAL Group's business growth and fleet / flight network expansion in recent years, we have recruited in various areas to meet the requirements of our growing business. To fulfill our commitment to social responsibility, we continue to promote industry-academia collaboration programs and employ people with disabilities. In 2021, CAL recruited 92 employees, including 70 full-time employees and 22 contract employees, accounting for 0.85% of the total workforce. Mandarin Airlines recruited 33 full-time employees, accounting for 3.78% of the total workforce. Tigerair Taiwan also employed 13 full-time employees, accounting for 2.01% of the total workforce.

New Employees of CAL Group in 2021



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Employee Turnover

Over the past three years, the average employee turnover of CAL has been 5.75%. Each of our employees is safeguarded by an employment contract, and each contract clearly sets forth provisions regarding rewards, disciplinary actions, and employment termination. In addition, rules concerning termination of employment and the number of days required for a notice of resignation comply with the Labor Standards Act. With respect to locations where employee turnover rates are relatively high, we evaluate local labor-related regulations and wage levels and refer to comments made by resigning employees and local managers to see whether adjustments are needed in our salary and benefit practices. We also utilize internal systems and incentive programs to reduce turnover rates.

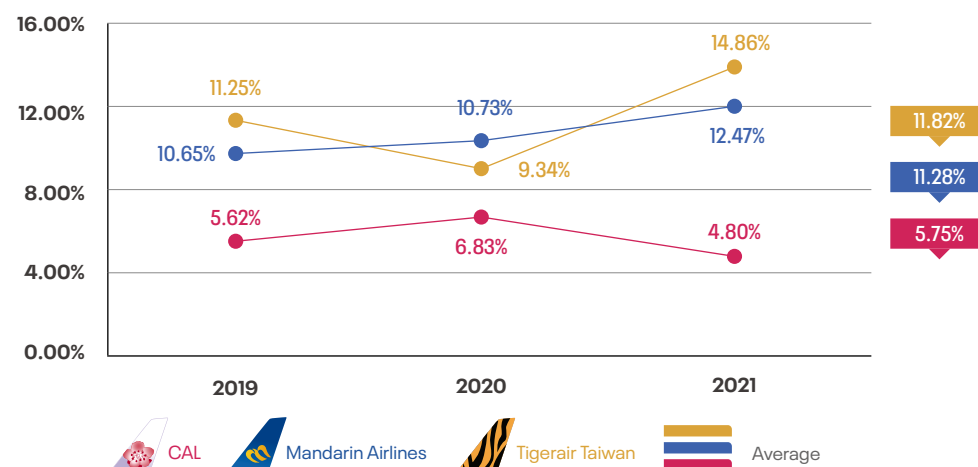
Refer to [ESG Data and Appendix Employee Turnover Rate Table](#)

At CAL, the employee turnover in 2021 decreased by 2.03% compared to that in 2020. The involuntary separation rate decreased by 1.79% compared to that in 2020 and the voluntary separation rate also decreased by 0.24%. CAL will continuously optimize internal management to maintain low turnover.

At Mandarin Airlines, employee turnover in 2021 arose by 0.73% compared to 2020, mainly due to seasonal short-term demand for labor, then after the employees' contracts expired there was no contract renewal due to a lack of demand for labor; some resigned due to personal career plans. In the future, Mandarin Airlines will provide a variety of communication channels for existing employees and improve employee benefits to retain staff.

Tigerair Taiwan's turnover increased by 5.52% in 2021 over 2020, including 34 employees with expired contracts (35.42%). Other turnover was primarily attributed to personal career plans. Tigerair Taiwan will continue to focus on planning diverse career development possibilities and optimize the benefits system to retain talents.

Employee Turnover Rate of CAL Group from 2019-2021



Employee Retention

Periodic Performance Evaluations Conducted on a Fair and Objective Basis

CAL conducts an employee performance evaluation three times a year. Except for employees who have worked for less than a certain period of time, all employees are covered in the performance evaluation. Apart from evaluations on general performance, core function assessment indicators and approaches are also adopted based on each employee's professional characteristics and in consideration of the actual working conditions of the employee under evaluation. To all managerial levels, a specific annual Management by objectives (MBO) framework has been established based on CAL's business strategies in addition to job assessment indicators.

To make the assessment process impartial and objective, each employee is evaluated by several supervisors, and performance grades are also allocated according to different job rankings. In addition, to ensure that the performance evaluation provides employees positive feedback and assistance and facilitates communication and interaction between supervisors and employees, interviews are also included in the performance evaluation.

A two-way assessment scheme has been formulated for evaluating the performance of all flight attendants. Flight attendants who have worked for more than one year are evaluated and assigned ratings based on their attendance, reward / disciplinary actions, and performance within a reasonable range and based on employee classification to avoid subjective impressions which could detract from the impartiality of the performance evaluation.

Sound Remuneration System

Every year, CAL offers employees reasonable remuneration packages, related benefits, and insurance coverage based on CAL's overall salary policy and earnings. Performance-based salary adjustments and promotions are also possible for outstanding employees, ensuring that the promotion process is conducted in accordance with the principles of transparency and fairness. In addition, we provide various types of allowances and benefits (such as dividends, education and training, employee stock options, concessional airfares, and work allowances) and flexible benefit programs (such as retirement packages) to meet employees' various needs. Apart from enhancing the bond between employees and the management, this arrangement can also raise employee satisfaction and retention rates.

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

2-2-3 Employee Development GRI 404-1, 404-2

Sound Training System and Framework

CAL has established a sound training system and framework to develop aviation professionals. We adopt diversified training methods, including on-site and online training courses, invest in training hardware and software. CAL values the functional development of employees and integrates fundamental aviation training with hands-on practice. In addition, CAL organizes business strategy and management related training for all managerial levels and employees with potential on a regular basis to improve their horizons and expertise.

Based on the demand of education and training, the Training Advisory Committee has been established to plan annual education and training activities for all employees. The primary strategic goal of CAL's training and development program is to enhance employees' job skills. Adopting the training framework of China Airlines Lecture Hall, CAL ensures that all employees are equipped with skills to perform their duties and job functions.

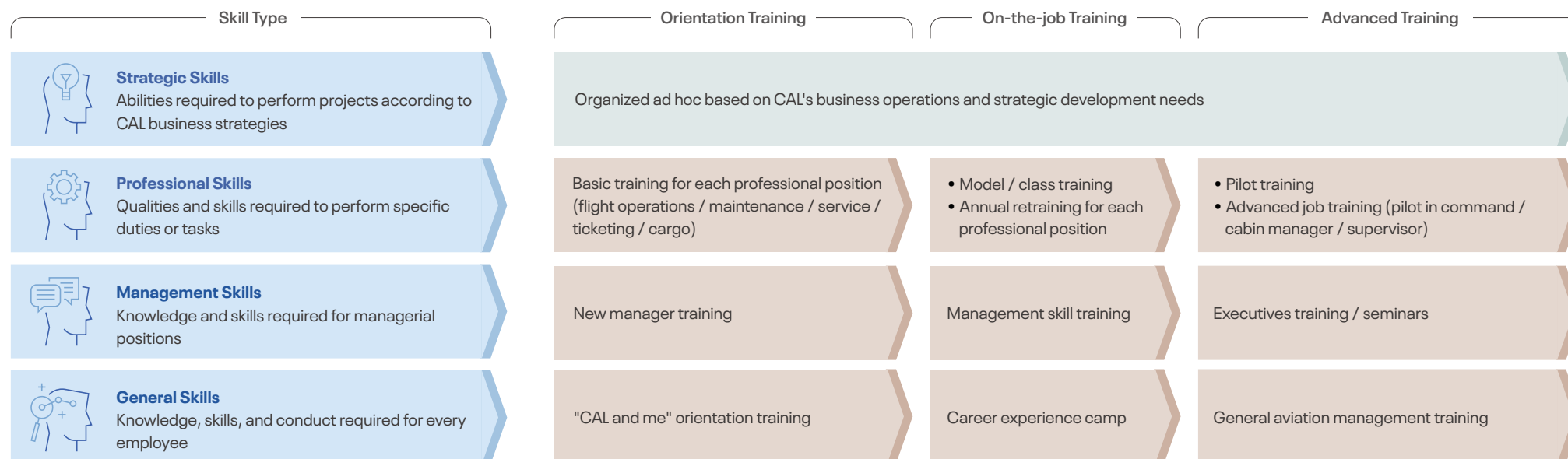
CAL as established the Talent Development Committee, chaired by the President, with senior vice presidents serving as members. The Talent Development Committee is responsible for regularly reviewing and improving training for potential talents. Each department refers potential talents to

the Talent Development Committee, which then determines their qualifications and development paths. During training, potential talents are provided with appropriate job rotations and management skill training to build their management capacity and experience. In addition to the annual talent recommendations, CAL also selects talents from different levels and sets up management improvement courses and management training courses. CAL provides two-year courses based on the ranks of the employees to continue to enhance their management skills. CAL has always sought out and successfully trained many potential talents to serve as unit chiefs both at home and abroad. CAL will continue to provide them with opportunities to develop their careers, in hopes of achieving corporate sustainability.

In 2021, CAL invested about TWD 190 million in employee training and development (the average amount was approximately TWD 16,400). The total number of training hours (including onsite and online courses) totaled approximately 354,000 (the average number of hours per employee was approximately 30.50 hours), and the completion rate of training reached 99.30%.

Refer to [Training Statistics of CAL Group Table in the ESG Data and Appendix](#)

Training Framework



Note: In addition to the above training programs, CAL encourages employees to participate in work-related trainings organized by the Ministry of Labor's Workforce Development Agency, by offering training allowances to employees who pay tuition at their own expense (20% of tuition).

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Sound Internal Recruitment and Rotation System

CAL is committed to upholding the principle of assigning each staff member to a proper position. We offer regular job rotations and internal training courses to improve our employees' job skills and overall productivity. Each department determines whether to rotate employees, based on their labor needs; in addition, we have established an internal recruitment system, so that employees can participate in the selection processes in accordance with their wishes and ambitions. This allows CAL to utilize its human resources in a flexible manner and ensures that employees are assigned to the most proper positions, resulting in a win-win situation for both parties. The internal vacancy replacement rate this year was 31.86% (Due to coping with the heavy impact of COVID-19, CAL had adjusted business strategy, which affected the percentage of open positions filled by internal candidates).

To utilize management with flexibility and to ensure that they are assigned to the most proper positions with improved competency, CAL conducts a management review and rotation evaluation on a regular basis. Managers working in domestic departments and outstations or joint venture companies for

three years will be included in the management review and rotation evaluation based on relevant regulations.

Human Capital ROI

Through education and training, employees can grow along with CAL's strategic and business goals. Meanwhile, corporate assets will also accumulated in value and provide CAL with a solid foundation for long-term viability. CAL has recently adopted the Human Capital Return on Investment (HCROI) metric as a benchmark tool. In addition to estimating earnings from investing in human capital, the metric can also be included in Company's long-term performance indicators. Although the impact of the COVID-19 pandemic persisted in 2021, the overall ROI was significantly higher than the previous year as CAL effectively controlled related operating costs and the revenue from cargo services was significantly higher than the revenue in 2020.

2019	2020	2021
1.00	1.26	1.86

Note: Human Capital ROI = $\frac{\text{Income} - [\text{Operating expenses} - (\text{Salary} + \text{Benefits})]}{\text{Salary} + \text{Benefits}}$.

Details of Employee Development Programs to Accommodate the Company's Business Objectives for 2021

Employee Development Program	Business Benefits	Quantitative Impact of Business Benefits	Proportion to Total Employees Participation in the Program
Strengthen Passenger Services: Cabin crew service training: Strengthen operation safety and passenger service skills during the pandemic (Training investment: around TWD 1.05 million)	Improve operational safety and service quality to increase passenger satisfaction and willingness to fly with us again	Increased cabin crew satisfaction rate by 2.8% in 2021 compared to 2020	24.0%
Training for increasing Cargo Revenue: <ul style="list-style-type: none"> • Strengthen cargo operation personnel's related cargo transport professional knowledge • Increase the number of flight crew members for cargo aircrafts (Training investment: around TWD 49.52 million)	Enhance cargo marketing effectiveness and fleet capacity to increase revenue from cargo aircrafts	Cargo aircraft revenue for 2021 increased by TWD 32.301 billion compared to 2020	3.2%

Industry-Academia Collaboration

CAL has promoted its campus talent development program since 2013 by taking advantage of its abundant practical experience and sound aviation training facilities and courses. In response to the government's policy on industry-academia collaboration and talent development, CAL has cooperated with colleges and universities nationwide to offer internship programs that last for six months to one year in variety fields. CAL also offers interns scholarships and allowances and arranges training courses for them. To start an internship, interns are required to pass the training courses first. In 2021, for the eleventh consecutive year since 2011, CAL was awarded as a Top 20 Youngsters' Favorite Brand by Cheers magazine. Through industry-academia collaboration, CAL will continue to provide students with opportunities to gain aviation expertise and make their career plans, and thus help CAL recruit potential talents.

As a result of the pandemic in 2021 and as most sites for internships are located in the vicinity of airport operations, CAL only accepted two interns for education technology and visual design (National Taipei University of Education and Tamkang University) in 2021 due to safety concerns. We will restore operations based on changes in the pandemic.

Declaration for Joining "TALENT in Taiwan"

To strengthen the competitiveness of talents in Taiwanese society, fulfill ESG corporate responsibility, and support the talents with global companies, CAL joined "TALENT in Taiwan" on February 16, 2022 to jointly promote sustainable talent development with "CommonWealth Learning", "Cheers", and 100 companies in Taiwan. We hope to use the project of hope for talent development to develop every worker, strengthen their professional skills, and create better career development and a brighter future.



2-2-4 Employee Rights GRI 102-41, 201-3, 401-2, 401-3, 402-1, 405-2




CAL attaches great importance to the opinions and well-being of our employees. In addition to regular reviews of employees' salary and benefit and labor-management meetings, CAL has established a number of communication channels and activities to enhance cohesion. CAL also respects the independence of labor unions in accordance with the law and promotes positive communication with labor unions.

Employee Care

Salary and Benefits

CAL firmly believes that employees are the most valuable assets and that it is important to protect both employee benefits and shareholders' equity. For these reasons, CAL provides competitive salaries and benefits for all employees. The salary and benefit package of each employee will not differ according to gender, race, religion, political affiliation, or marital status. Whenever the minimum wage of a particular global location is raised, we promptly review our salary standards and make necessary adjustments in a timely manner. In 2022, CAL's average salary increase will be no less than 4%. Employees who are required to work overtime due to the nature of their employment will receive reasonable overtime pay in accordance with regulations. No employee shall be forced to work against his or her will.

Male / Female Salary Ratio of CAL Group in 2021 (Female Salary is 1)

Company						
	Base Salary	Bonus	Base Salary	Bonus	Base Salary	Bonus
Business Operations	1.23	1.32	1.05	1.11	1.54	2.59
Flight and Cabin Crews	1.24	1.14	1.56	3.66	3.26	3.37
Maintenance Personnel	1.09	1.00	0.99	1.40	1.10	3.79
Others	1.17	1.06	1.19	1.55	1.45	2.09

Note 1: Female salary is 1 in this Salary Ratio Table.

Note 2: Flight and cabin crews include pilots and flight attendants, pilots were mostly male, while flight attendants were mostly female. Pilots' salaries are higher than flight attendants', resulting in a large difference in the male / female salary ratios; others include executives higher than the rank of vice president, auditors, accountants, information technology personnel, and other employees that are not within the aforesaid categories.

Note 3: Base salary: basic pay; bonus: pay outside base pay.

In accordance with the Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies, the Company disclosed its number of full-time employees not in a managerial position as 9,810 in 2021 a decrease of 225 from the previous year. The total salary of full-time employees not in a managerial position was TWD 16,964.113 million, an increase of TWD 1,876.687 million year-over-year, the average

salary of full-time employees not in a managerial position was TWD 1.729 million in 2021, an increase of TWD 0.226 million, and the median salary of full-time employees not in a managerial position was TWD 1.241 million in 2021, an increase of TWD 0.251 million.

Full-time Employees not in a Managerial Position	Numerical Value	Difference from the Previous Year
Number	9,810	▼ 225
Total Salary (TWD million)	16,964.113	▲ 1,876.687
Average Salary (TWD million)	1.729	▲ 0.226
Median Salary (TWD million)	1.241	▲ 0.251




Note: Please refer to the Appendix for more information on the [gender pay gap analysis](#).

Pension Scheme

CAL attaches great importance to the rights and interests of our employees. CAL reports the management of the pension reserve fund to the Labor Pension Reserve Supervisory Committee on a quarterly basis. Prior to the end of each year, CAL allocates the amount required for the following year based on actuarial calculations and relevant laws and regulations. In terms of allocation rates, the rate for the new labor retirement plan is 6%; the rate for the old labor retirement plan is 15%, which reaches the statutory upper limit, and this amounts have been fully allocated in accordance with Paragraph 2, Article 56 of the Labor Standards Act to ensure that employees receive the retirement benefits to which they are entitled.

Salary, Benefits and Pension Reserve Fund of CAL Group in 2021

(Unit: TWD million)

Company	Item	2019	2020	2021
	Salary	15,998	13,659	13,660
	Benefits	213	261	216
	Pension Reserve Fund	6,347	6,241	6,514
	Salary	864	850	896
	Benefits	6.88	3.69	2.48
	Pension Reserve Fund	352	390	436
	Salary	870	720	519
	Benefits	4.85	4.29	3.31
	Pension Reserve Fund	2.53	1.54	0.86

Note 1: Benefits offered by CAL / Mandarin Airlines included travel allowances, allowances for the elderly, scholarships, Labor Day gift money, spring parties, and anniversary expenses.

Note 2: Benefits offered by Tigerair Taiwan included travel subsidies, club allowances, birthday cash gifts, Mid-Autumn Festival and Dragon Boat Festival gift vouchers, spring parties, and family day activities.

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

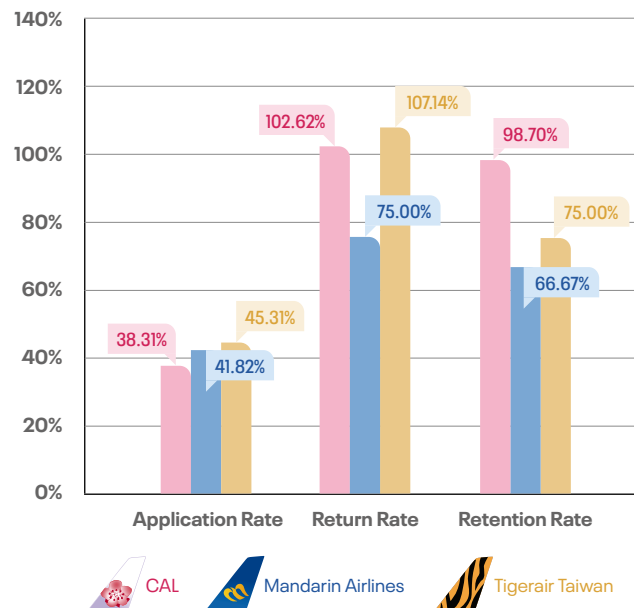
Unpaid Parental Leave

CAL has set up a sound unpaid parental leave system, allowing employees to take care of their families while retaining their positions with CAL. Male employees are also entitled to unpaid parental leave, including the option to apply for 5-day paternity leave with full pay before and after childbirth. If the period of paternity leave coincides with a business trip or a regular day off or public holiday, paternity leave may be taken within 15 days following the business trip or holiday. CAL offers better leave than that stipulated in the Gender Equality in Employment Act .

Refer to

[ESG Data and Appendix Unpaid Leave of CAL Group Tables](#)

Unpaid Parental Leave of CAL Group in 2021



Benefits for CAL Employees



Year-end Bonuses / Dividends

At the end of each year, a year-end bonus is allocated from CAL earnings. Employee dividends are also distributed in accordance with employee performance and CAL's yearly management goals.



Retiree Portal (Retiree Association)

CAL has assisted its retirees and employees in establishing a global retiree association and the CAL Retiree Portal. Every year, the Retiree Association organizes quarterly activities to promote interchange between retirees. CAL also offers grants to the Retiree Association to provide positive assistance and encouragement.



Employee Benefits

Employee benefits include wedding cash gifts, childbirth cash gifts, disaster subsidies, travel allowances, scholarships, allowances for the elderly, emergency loans, birthday cash gifts, Labor Day gift vouchers / cash gifts, and allowances for funerals.



Annual Leave Scheme

CAL offers annual leave better than that stipulated in the Labor Standards Act.



Childcare

CAL has entered into preferential childcare contracts with 10 daycare centers across Taiwan to assist employees with childcare arrangements.



Breastfeeding Environment

CAL provides friendly and warm breastfeeding (collection) rooms at the workplace to create a comfortable breastfeeding (collection) environment.



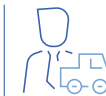
Concessional Flight Tickets

Employees and their spouses, parents, and children enjoy free and concessional flight tickets to more than 50 destinations around the world. Code-shared concessional flight tickets from other airlines are also offered.



Group Health Insurance

Group health insurance covers medical, accident and serious illness insurance. Dependents may also be enrolled in the group insurance scheme at favorable rates.



Commuting

Apart from regular commuter shuttles at fixed sites, there are also shuttle buses for shift workers, cabin crew members, and employees with disabilities stretching from Keelung, Taipei City and New Taipei City to Taoyuan and Zhongli.



Flexible Work Hours

Ground employees in CAL Park who do not use the shuttle buses may, with the approval of their supervisor, apply for flexible work hours (up to one hour each day). Each application must be for a duration of at least three months.



Employee Stock Ownership Trust

Participation is voluntary. For employees who agree to join the employee stock ownership trust, a fixed amount is deducted from their monthly salary based on their pay grade.



Resignation Program

Employees in the general track after 10 years of service and employees in the specialist track after 10 years of service and reaching the age of 54.



Psychological Counseling

The Company provides psychological counseling services to take care of the needs of employees, promote their growth, and increase their work satisfaction.



Health Examination

The inspection items and frequency of health examinations provided by the Company are superior to regulatory requirements. All employees (except for flight crew members and level 1 managers and deputies) receive health examinations once every two years. Taiwanese cabin crew, employees that work on shifts (with 60 days or more night shifts/year), ground service crew above the age of 35 and employed for at least one year receive a health examination each year.



Work from Home

The Company issues notices for the implementation of work from home plans in response to major outbreaks of the pandemic and terminates such plans based on the development of the pandemic.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix



Unpaid Leave



Care for Dependents

Applicable when an employee's spouse or direct relative is seriously ill or when necessary.



Illness

Applicable when an employee is seriously ill and has not recovered after taking relevant leave in accordance with regulations.



Advanced Education

All employees, regardless of school or discipline, must be enrolled in a discipline that is relevant to their current position or meets the needs of the company and is recognized by the Ministry of Education of the Republic of China.

Employee Communication

Each and every employee matters to CAL. We maintain multiple channels of communication with our employees, such as regularly scheduled labor-management meetings, and strive to find solutions to problems. We have established an employee care mailbox, a sexual harassment mailbox with an associated grievance hotline, and also a "Speak Your Mind" employee communication mailbox. In addition, our Team+ internal company messaging software enables employees to express their opinions and make suggestions at any time. When facing significant operational changes that will affect employees, CAL gives notice in compliance with relevant labor regulations and promptly communicates with labor unions and employees. Information on material issues and employee rights is made available on CAL's website or e-mailed to all employees. When employees express concerns about certain internal regulations or practices, CAL seeks to clarify the issue and communicate with the employees more frequently.



Versatile Communication Channels



1. Labor-management Meetings

Meetings are held on a regular basis, allowing CAL to communicate with CAEU representatives.



2. Supervisor Mailbox

CAL encourages employees to express opinions and give suggestions through the Level 1 supervisor mailbox.



3. "Speak Your Mind" Employee Portal:

CAL encourages employees to express opinions and give suggestions through the "Speak Your Mind" Employee Portal on the Intranet.



4. Employee Care Mailbox

The Human Resources Division has set up an employee complaint e-mail (wecare@china-airlines.com) to protect employees' rights and interests.



5. Sexual Harassment Complaint Mailbox

The Human Resources Division has set up a confidential mailbox and assigned personnel to process cases.



6. Team+

This internal company messaging system is offered to employees for free, to facilitate two-way communication and instant reporting to supervisors.

Labor Unions GRI 102-41

CAL cooperates with different labor unions and remains committed to communication and negotiation. We also show the same respect to all unions in accordance with law. As CAL continues to communicate with labor unions, CAL did not have any major labor disputes or strikes in 2021. In particular, the China Airlines Employees Union (CAEU), which has the highest participation rate of CAL employees, is a member of the Chinese Federation of Labor. There are six subordinate branches under CAEU, which are classified based on the location of members / business:

Branch 1: Divisions in Head Office

Branch 2: Flight Operations Division

Branch 3: Cabin Crew Division and In-flight Supply Chain & Marketing Division

Branch 4: Maintenance Division, Engineering Division, and Quality Assurance Division

Branch 5: Taipei Branch, Ground Service Division, and Cargo Sales, Marketing & Service Division

Branch 6: Kaohsiung Branch

There are six subordinate branches within the Mandarin Airlines Employees Union (MDAEU):

Branch 1: Divisions in Taipei Head Office, Taichung Branch

Branch 2: Flight Operations Division and Operation Control Center

Branch 3: Inflight Services Department

Branch 4: Customer Service Division (Taipei, Kinmen, and Taitung)

Branch 5: Engineering & Maintenance Division

Branch 6: Customer Service Division (Taichung, Magong, Hualien, and Kaohsiung)

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society



3 Corporate Governance

ESG Data and Appendix

All employees of CAL, with the exception of the senior managers as stipulated in the union constitution, have joined the China Airlines Employees Union, and are governed by a collective agreement signed by both parties in 2002. The parties renewed the agreement for the 6th time on December 16, 2021. After CAL concluded negotiations with the Pilots Union Taoyuan, they signed a collective bargaining agreement on December 29, 2021. In January 2017, Mandarin Airlines entered into a collective bargaining agreement with the Employees Union. The agreement includes union assistance, labor-management cooperation, dispute resolution, employment and termination, working hours, leave and vacation, salary, allowances and bonuses, personnel transfers, rewards, disciplinary actions, benefits, training, and occupational safety and health clauses. The parties negotiate the renewal of the agreement every three years.

CAL / Mandarin Airlines cooperates and communicates with CAEU/MDAEU through various channels as a partner and based on mutual dependence, and the two parties have established various channels of communication over the years. All resolutions will be handled once they are reported. In addition, meeting minutes taken at labor-management meetings held at the Head Office are published and made available to all employees on CAL's website / Mandarin Airlines' website. CAL / Mandarin Airlines is dedicated to maintaining harmonious labor-management relations through open, efficient channels of communication. In 2021, due to the pandemic, CAL and the CAEU reached an agreement to hold three labor-management meetings in writing at the beginning of the year when the pandemic was at the most severe. A total of six meetings were held throughout the year to take into account both labor-management communication and joint pandemic prevention.

Union Participation Rate of CAL and Mandarin Airlines

Company	Item	2019	2020	2021
	Number of participants	10,201	9,811	9,526
	Participation rate	99.48%	99.43%	99.41%
	Number of participants	851	852	797
	Participation rate	90.72%	96.49%	99.75%

Note 1: The number of CAL participants refers to the number of people being members of CAEU in the year (including employees in Taiwan); hourly-basis employees, interns, contracted employees, and executives higher than the rank of vice president are not included.

Note 2: The number of Mandarin Airlines participants refers to the number of people being members of MDAEU in the year (including employees in Taiwan below the rank of vice president (inclusive) and expatriate executives in Mainland China); hourly-basis employees and contracted employees are not included.

Note 3: Tigerair Taiwan does not have a labor union currently.

Note 4: The collective bargaining coverage rate of CAL / Mandarin Airlines is equal to the labor union participation rate.

Employee Engagement

CAL has established diversified and unobstructed communication channels to listen to employees' suggestions attentively in line with its belief that employees are the Company's most important asset. Through an employee satisfaction survey, CAL understood employees' opinions of and needs for the Company and each unit, which served as a reference for CAL to provide a stable work environment. This would further increase employees' work efficiency and create a virtuous circle-based excellent corporate culture. CAL conducted the employee satisfaction survey in 2019. The survey covered six major dimensions, including Organizational

Health, Corporate Culture, Leadership, Job & Career, Working Environment, and Compensation and Benefits (effective response rate was 6.4, of which 6.5 for males and 6.2 for females, with no significant difference) (for details, please refer to page 67 in the 2019 China Airlines Corporate Sustainability Report). The employee satisfaction survey is conducted every two years in principle, and was originally intended to be conducted again in 2022, but was postponed to 2023 due to the pandemic. In 2021, CAL will continue to invest in a number of enhancements and improvements for its employees, as shown in the table below.

As the impact of the pandemic spreads across the global aviation industry, CAL cares about whether employees' career plans have been changed by the pandemic. CAL also wanted to learn about the impact of the pandemic on employees' willingness to be assigned to foreign branches and affiliates, and therefore conducted a survey of eligible managers and employees in non-supervisory roles in 2022 on their willingness to be assigned overseas. The response rate was 100%. Overall, 55% of the surveyed employees are willing to be assigned to overseas branches and 62% of the surveyed employees are willing to work in domestic affiliates. A more in-depth analysis of the management showed that 65% of the managers are willing to work in foreign branches and 83% of the managers are willing to work in domestic affiliates. The results showed that despite the pandemic and the mounting challenging employees must face when they are assigned to overseas branches or affiliates, more than half of the employees are willing to accept new challenges for CAL and management personnel are also supportive. It is evident that the work ethics of CAL employees are not affected by the pandemic and they will stay with the Company through the difficulties.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Improvements	Corresponding Dimension
After open and sincere negotiations between labor and management, CAL signed collective bargaining agreements with China Airlines Employees Union and Pilots Union Taoyuan on December 16, 2021 and December 29, 2021 to stabilize labor relations.	<ul style="list-style-type: none"> • Organizational Health • Corporate Culture • Leadership • Job & Career • Working Environment • Compensation and Benefits
To support flight crew during their isolation after duty, CAL formed a care team and provided the free "You Talk, I Listen" hotline and "Online Courses for Flight Crew Members during Quarantine" programs to provide care to employees and help resolve various life issues. As a result of the pandemic, CAL quickly adjusted the work contents of employees and actively held on-the-job training (OJT) or e-learning courses to strengthen employees' professional skills and work efficiency.	<ul style="list-style-type: none"> • Organizational Health • Corporate Culture • Job & Career • Working Environment
Strengthen information security management and enhance the capacity of different information / communication devices so that employees can work from home in response to changes in the pandemic.	<ul style="list-style-type: none"> • Working Environment • Job & Career
CAL continues to offer incentive programs to reward and show appreciation for the contributions and hard work of our employees during the pandemic.	<ul style="list-style-type: none"> • Leadership • Compensation and Benefits
CAL has formed an internal disease prevention team, held disease prevention meetings on a regular basis or based on disease prevention needs, and cleaned and disinfected the working environment and public spaces at regular intervals/time. We also set up alternate seating plans or safety distance signs in elevators and cafeterias.	<ul style="list-style-type: none"> • Working Environment
CAL continued to hold labor-management meetings and different forms of labor-management communication meetings during the pandemic through alternative means such as written records. We also use the manager's mailbox, Speak Your Mind Mailbox (employee suggestion mailbox), grievance channels, or the Company's internal communication software (Team+) to allow employees to express and communicate their opinions whenever necessary and maintain smooth internal communication channels.	<ul style="list-style-type: none"> • Organizational Health • Corporate Culture • Leadership • Working Environment
CAL organized many training and general courses including manager training, experience sharing by experts, and general courses for career development for a total of 17,225 participants.	<ul style="list-style-type: none"> • Organizational Health • Corporate Culture • Leadership
CAL will provide a year-end bonus of an average of six months' base salary to employees to motivate them and share the fruits of the Company's success. We also support the government's initiatives for companies to increase employees' salaries. In 2022, the average salary increase will be no less than 4%.	<ul style="list-style-type: none"> • Compensation and Benefits

Protection of Employees' Rights during the COVID-19 Pandemic



The impact of the COVID-19 pandemic persisted in 2021 and caused significant losses to the global aviation industry. To take good care of its employees, CAL continues to implement policies to streamline manpower (temporary hiring freeze, relaxation of regulations on suspension of work without pay, manpower adjustments, and special project leave) with the joint efforts of labor and management. CAL also actively supports the government's disease prevention policies, encourages employees to vaccinate, and provides necessary support (e.g., vaccination leave) and measures for separating employees in the office or work from home to protect employee health and ensure safety at the workplace.

2-2-5 Healthy and Safe Workplace GRI 403-1, 403-2, 403-9, 403-10

CAL has established an Occupational Safety and Health Committee in accordance with law. The committee is tasked with the objective of preventing occupational hazards and protecting the safety and health of all employees by reviewing, coordinating, and making recommendations pertaining to safety and health related matters. The President acts as the chairperson. One deputy chairperson and one executive secretary are appointed. Members consist of vice president, occupational health and safety employees, engineers, and medical personnel from the designated divisions / departments as well as representatives appointed by labor unions. A meeting is held once every three months to review and analyze occupational incidents. All incidents are followed up and reported to the management so that related health management solutions can be subsequently developed. In 2021, has 1 safety and health proposal was reviewed and discussed, which has been closed. Meeting minutes were published on the EIP website; a total of 163 hazard and safety issues were reported, all 163 were improved and closed with an achievement rate of 100%.

Five Major Goals of CAL's Occupational Safety and Health

- 1 Comprehensive occupational safety and health management system
- 2 Reinforce the corporate safety culture and enhance personnel's safety awareness
- 3 Enforce risk management mechanism and effectively resolve threats
- 4 Strengthen safety and health education & training to reduce incidence of occupational injury
- 5 Build a safe, healthy and comfortable working environment



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Proportion of Labor Representatives in Occupational Health and Safety Committee of CAL Group in 2021 (Unit: %)

Company		2019	2020	2021
CAL	Taipei Branch	36.36	36.36	36.36
	CAL Park	36.53	37.73	37.73
	Kaohsiung Branch	37.50	37.50	37.50
	EMO	34.78	34.78	34.78
Mandarin Airlines		33.33	33.33	33.33
Tigerair Taiwan		38.46	41.18	41.17

Note: Labor representative proportion = (Occupational Health and Safety Committee labor representatives / Occupational Health and Safety Committee total members) × 100%.

Dual International Certification of Occupational Health and Safety

To implement safety and health management more efficiently, systematically, and in accordance with both international trends and domestic and foreign standards, CAL has established an independent safety and health management system and enhanced risk controls in line with international standards. On April 20, 2019, CAL obtained ISO45001: 2018 and TOSHMS certifications for our safety and health management system, which adopts the PDCA model. Through the risk management mechanism, risk classification management is carried out according to each type of operation and job category into the following three categories:

Category	Hazard Risk Classification	Job Type (For Example)
Category 1	Significant occupational risk	Flight crew, cabin crew, cargo loading personnel
Category 2	Moderate occupational risk	Engineering personnel, machinery and equipment operators
Category 3	Low occupational risk	Office administrators

We have completed the set-up of safety and health officers and on-the-job training for each unit, including how to conduct workplace hazard identification, risk classification, how to create management plans, and occupational hazard identification process. We also provide guidance to units at all levels on risk assessment as well as prevention and improvement. In addition, according to

the five major operational elements of the Occupational Health and Safety management system and its related implementation, we will effectively control the risk of occupational hazards through regular audits, improve the management of occupational disease prevention, enhance the performance of occupational safety and health management, and implement the occupational safety policy to ensure that employees can work in a safe, healthy, and comfortable work environment.

A total of 1,271 safety and health physical inspections were conducted at each work site, and 144 faults were found, all of which were coordinated with the relevant units for improvement. The internal audit of each unit is performed once a year, and the external audit is entrusted to SGS once a year.

Enhancing Operational Safety and Implementing Risk Control over Occupational Health and Safety Management

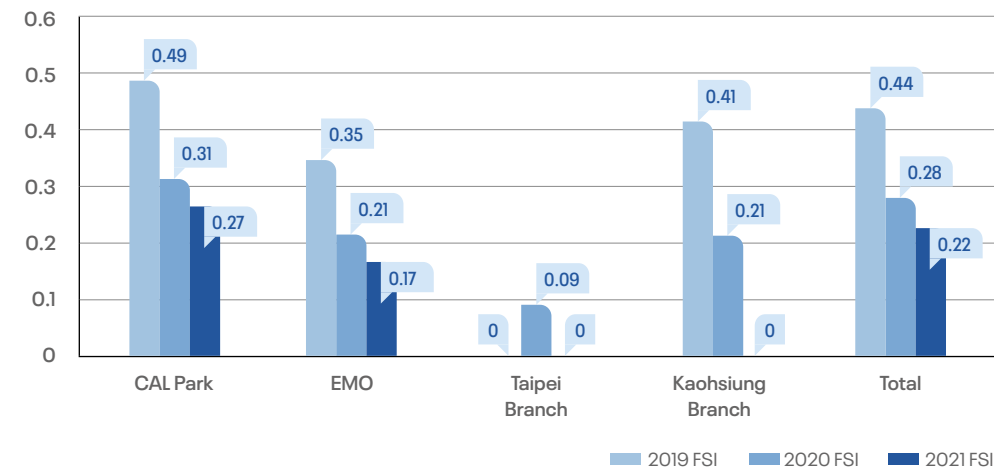
In 2021, the disabling injury frequency rate (FR) was 1.63; the disabling injury severity rate (SR) was 32; the frequency-severity indicator (FSI) was 0.22; and the absence rate was 0.71%. According to analysis, most occupational hazard incidents were caused by unsafe employee conduct. However, CAL's FR and SR were lower than the air transport industry average FR (3.39), SR (54), and FSI (0.43) from 2018 to 2020. No student occupational hazard incidents in industry-academia collaboration programs or summer internship programs were reported at CAL workplaces, and no occupational hazard incidents occurred to contracted agents in 2021. We will continue to implement the promotion of occupational hazard prevention and related education and training.

Refer to

[Comparing the Frequency-severity Indicator and Occupational Injury Statistics Over the Past 3 Years](#)

[Occupational Hazards Statistics of CAL Group](#)

Comparing the Frequency-Severity Indicator Over the Past 3 Years





Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Strengthening Epidemic Prevention Measures in Response to Emerging Epidemics

1. Establishment of Emergency Response Mechanisms

In response to the outbreak of new diseases in recent years and to avoid uncertainties in future pandemics, the Company has established hierarchical mobilization mechanisms between different units, a command system, and operating procedures to integrate relevant units for collective response. We remind our employees to be alert and activate our response mechanisms in accordance with the severity of pandemics at any given time. The Corporate Safety Division also organizes preventive actions and convenes ad hoc disease prevention meetings.

2. Increase Risk Management Awareness

We set up a health management reporting system for employees with higher exposure risk levels (flight crew members). We also created a pandemic management system for tracking, a vaccine registration system for managing employees' COVID-19 vaccination, rapid screening mechanisms for preventing the spread of the disease, adjustments to office or business travel, strengthened disease prevention education, and establishment of cooperation mechanisms with relevant departments. We set up a Team+ group contact platform to connect different units and ensure the supply of consistent information. We activated multiple channels to provide real-time information, and encouraged employees with fever or acute respiratory symptoms to rest at home until their symptoms subside before returning to work.

3. Enhance Hazard Prevention Knowledge Against Biological Agents

We organized training programs for preventing infections for all employees and provided training on the correct use of personal protective equipment for employees with higher risk of exposure. We required contractors to strengthen disease prevention, COVID-19 vaccination, rapid screening mechanisms, and anomaly reports. We strengthened self-management measures such as temperature measurement and recordkeeping, maintaining indoor ventilation and regular replacement of filters, disinfection of the workplace, sanitation and health education, and personal protective equipment.

4. Management of Epidemic Prevention Supplies

Management, procurement, distribution, safe stock quantity, and storage is standardized by a dedicated unit.

5. Mental Health Support / Employee Assistance Program

Provide epidemic prevention care kits and related assistance measures to employees (crew members) with higher exposure risk level; proactive care.

Future Plans

1. Recruitment

In 2022, CAL will continue to recruit flight crew members and employ more people with disabilities, in order to achieve our commitment to corporate social responsibility.

2. Diversification

Over the past three years, CAL's female employees have accounted for 48.00% of the total workforce. The 2022 target is also set at 48.00%. In terms of CAL's female managers, the proportion has increased year by year over the past three years. In 2023, the target is set at 24.75%.

3. Employee Training

2022 marks CAL's 62nd anniversary. In addition to strengthening company products and services, CAL will continue to provide professional training that covers all fields of expertise. Out of a desire to transmit our corporate culture and values, CAL will base our overall employee training goals on Care, Communication, and Pass on experiences, and implement training through Effective Management, Case Studies, and Follow-Up. CAL plans to organize training courses, including general management skills training, with employee problem identification, employee care and communication, management seminars, and group cohesiveness; professional training for instructors and human resources personnel; and general training for all employees, including general aviation management, Cross-departmental communication.

4. Implementing Occupational Health and Safety Management System (ISO 45001) and Incorporating Occupational Safety and Health in Corporate Culture

By establishing graded safety and health management practices, CAL expects to apply the concepts of occupational safety and health to work and enhance employees' skills to maintain these concepts. Enhance the safety and health management system, and safety and health audits to reduce occurrence of occupational hazards.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

2-3

Cooperation


HIGHLIGHTS


6th time annual supplier conference

Taiwan's first airline to hold an annual supplier conference for six consecutive years.



1st airline to conduct sustainability audits

Taiwan's first airline to perform sustainability audits.



62% critical tier 1 suppliers completed audits

CAL continues to promote sustainable supply chain policies and risk management measures and has completed audits for 62% of critical tier 1 suppliers by 2021.

Management Approach GRI 103-1, 103-2, 103-3

Topic of Concern

- Sustainable Supply Chain Management

Importance of Material Issues

CAL's vision of "becoming the preferred airline in Taiwan" has firmly established it in Taiwan and around the world. We are committed to the pursuit of sustainable development. We understand that truly sustainable development and value can only be achieved through collaboration with our business partners. Thus, we have formulated the sustainable supply chain management policy, according to international standards and guidelines such as the United Nations Global Compact (UNGC), International Labour Organization (ILO), and ISO 26000:2010 Guidance on Social Responsibility. The sustainable supply chain management policy is applicable to the suppliers and contractors of CAL and its subsidiaries and joint ventures. Hence, we urge that the principles of sustainable development be implemented as part of our overall supply chain management to jointly fulfill our corporate social responsibility.

Commitment and Long-term Goals

• Commitment

To achieve supply chain sustainability, CAL has committed itself to the development and continuous improvement in the three dimensions of governance, society, and the environment.

• We are committed to

1. Conducting risk and impact assessments to ensure supply chain sustainability and establish fair, transparent mechanisms for supplier management.
2. Selecting economic and acceptable products and services by considering their environmental and social effects.
3. Adhering to ethical business standards by eliminating leakages, vested interests, and corruption.

• We require all suppliers and contractors to

1. Strictly abide by local and international laws and regulations.
2. Implement quality control systems that ensure the quality and safety of products or services provided.
3. Establish information security mechanisms that prevent the misuse of confidential and sensitive information.
4. Comply with local and international human rights and labor standards, and not follow child labor and discriminatory practices.
5. Provide a safe working environment and secure workplace over health and safety issues.



Sustainable
Supply Chain
Management
Policy Statement



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

6. Discontinue forced labor and guarantee freedom of association as well as proper working conditions and pay.
7. Reduce the negative impact of products and services on the environment and society in accordance with sustainability-related regulations.

• Long-term Goals



2023

1. Maintain SAQ Score at 87 points
2. Optimize risk management for sustainable supply chain, implement the SAQ, and audit 70% of critical tier 1 suppliers and 50% of critical tier 2 suppliers by 2023

2025

1. Maintain SAQ score at 87 points
2. Expand the scope of supply chain management, implement SAQ audits, audit 100% of critical tier 1 and tier 2 suppliers by 2025

2030

1. Maintain SAQ score at 89 points
2. Provide supply chain training, improve assistance mechanisms, and continuously implement a SAQ

📍 Unit in Charge

Corporate Sustainability Committee — Supply Chain Task Force (in charge of aviation supplies, jet fuel, in-flight catering, and service procurement as well as general affairs)

📍 Management Mechanisms

- The meeting of Corporate Sustainability Committee, at least twice a year
- Supply Chain Task Force reports to Corporate Sustainability Committee, every quarter

- Expand the SAQ to cover the critical tier 2 suppliers

📍 Grievance Mechanism

CAL's suppliers access information on grievance mechanisms through the QR code below. Grievances will be handled by our dedicated personnel immediately.

- **General Products: Administration Division** — E-Mail: tpeuo@china-airlines.com
- **Aviation Parts: Engineering Division** — E-Mail: AOG_DESK@email.china-airlines.com
- **E-shopping / Duty free: In-flight Service Supply Division** — E-Mail: e-shopping@china-airlines.com



Stakeholder
Contact

📍 Objectives and Plans

KPI	2021			2022 Objectives
	Objectives	Performance	Achievement	
Convene Annual Supplier Conference	One session	Held in Taipei on December 29, 2021	100%	One session
Conduct SAQ	Response rate at least 71%	Response rate over 71%	100%	Response rate at least 72%
Critical Supplier SAQ Score	86 points	87 points	100%	87 points
Implement Procurement Staff Training	Three sessions	Three sessions to be held in July respectively	100%	Three sessions

2-3-1 CAL Value Chain GRI 102-9

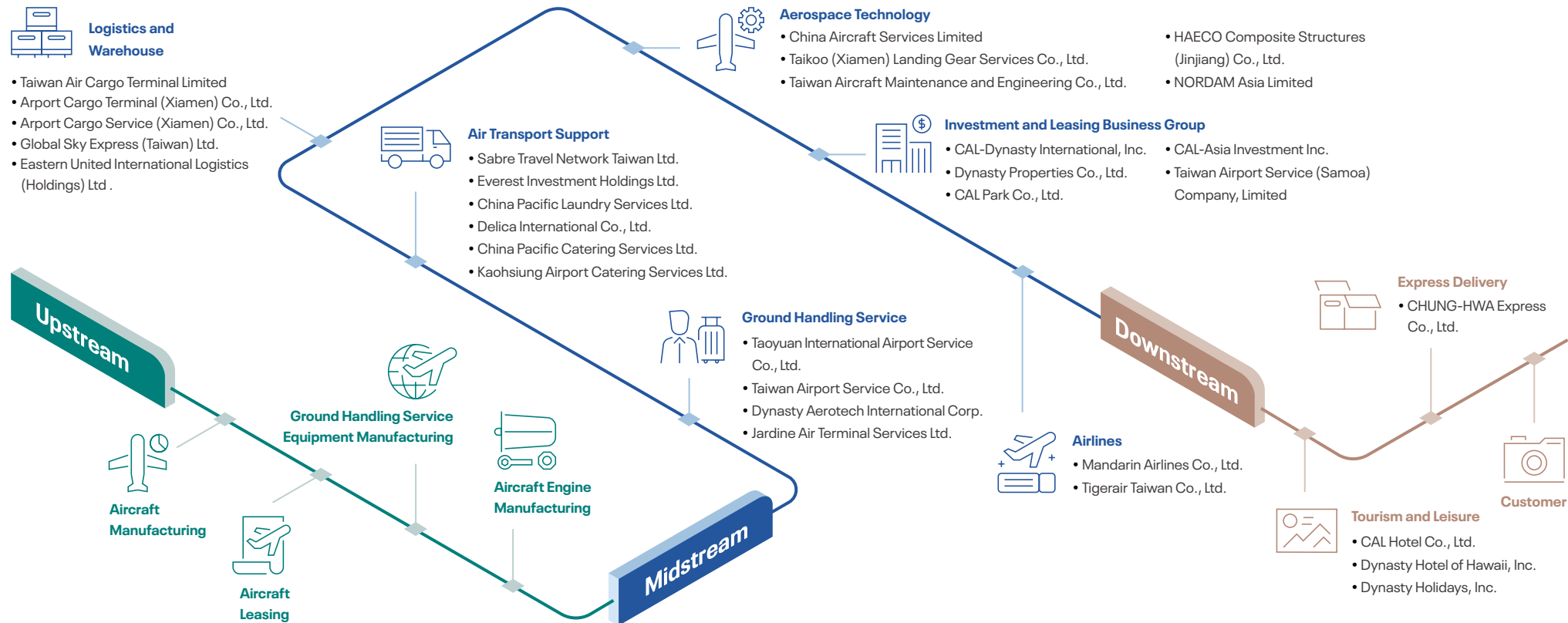
Compared with other industries, the aviation industry is unique in respect of safety concerns. As of the end of 2021, the CAL Group had established 31 affiliated companies in business sectors including air transport, ground handling service, tourism, aerospace technology, air transport support, and logistics and warehousing. By integrating their strengths, the Group will optimize its overall quality of service, competitiveness, and value chain.

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

Material Procurement Types

Category (No. of Tier 1 Suppliers / Critical Tier 1 Suppliers)	Aviation Materials Aircraft Parts (534 / 19)	Aviation Fuel Fuel Required for Flight (19 / 5)	In-Flight Catering In-Flight Meals Offered to Passengers (31 / 6)	Ground Handling Service Airport Manpower (4 / 1)	General Products Goods Required for Overall Operations (120 / 7)
Description	Aviation materials are keys to flight safety. Therefore, aviation materials must have certificates of qualification, and their airworthiness must be confirmed by related units / divisions / departments.	Fuel is vital for flight and its cost of procurement forms one contributor to operating costs.	In-flight catering stands as one of CAL's crucial quality services. CAL provides passengers with a complete in-flight experience based on the needs of long-haul and short-haul passengers and nationality requirements.	CAL provides excellent airport services, and improves passengers' satisfaction throughout the journey with the help of its ground staff and agents.	General products refer to basic supplies required for business operations to improve operational efficiency and quality.
Critical Supplier's Definition	Irreplaceable suppliers and yearly accumulated procurement amount is over certain percentage.	Irreplaceable suppliers or the procurement amount is accounted for over certain jet fuel cost in whole year.	Suppliers offer long-haul service. (including the China Pacific Catering Services at Taipei Station)	Irreplaceable suppliers, exclusive ground handling agent which is not affiliated with airlines, and yearly flights handling by the suppliers are accounted for over certain total flights of CAL.	Irreplaceable suppliers or yearly accumulated procurement amount is over certain number.

Note: Material procurement types are defined by the volume of procurement.



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

2-3-2 Sustainable Supply Chain Management

GRI 204-1, 308-2, 407-1, 414-2


CAL has implemented sustainable supply chain management since 2014 and later established the Supply Chain Task Force to be in charge of sustainable supply chain management covering aviation supplies, jet fuel, in-flight catering, and service procurement as well as general affairs. In addition to setting the long-term sustainable development goals in accordance with the UN's Sustainable Development Goals (SDGs), CAL has formulated the "[Sustainable Supply Chain Management Policy Statement](#)" and "[Supplier Code of Conduct](#)" in accordance with international standards, including the Global Reporting Initiative (GRI), ISO 26000, United Nations Global Compact (UNGC), and International Labour Organization (ILO). CAL also established risk review mechanisms to perform audits, held the supplier conferences for facilitating negotiations, and reported the results to the Corporate Sustainability Committee for review every quarter.



Supplier Code of Conduct

2021 Achievements

1. Performance of Supply Chain Sustainability



Use of Sustainable Aviation Fuel to Protect The Environment

Compared to narrow-body aircrafts of the previous generation, the two A321neo aircrafts delivered to CAL in 2021 reduce fuel consumption by 15-20%, noise by 75%, and NOx emissions by 50%. When the two new A321neo aircrafts were delivered to Taiwan, CAL made arrangements to use sustainable aviation fuels, as it did for A350 aircrafts. Sustainable aviation fuels reduce carbon emissions by 8% when compared with traditional fuel. CAL takes real actions to save fuel and reduce carbon emissions to support its commitment to net zero emissions by 2050, reduce greenhouse gas emissions, and protect the environment. After the new A321neo aircrafts arrive in Taiwan and preparation and certification are completed, they will be used for flights to Northeast Asia, Southeast Asia, and China to strengthen CAL's regional flight network.

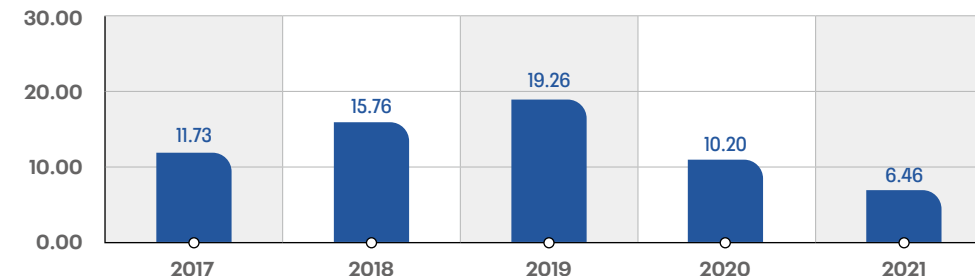
Green Procurement

CAL continues to purchase new energy-efficient passenger and cargo aircrafts including 777F and A321neo, use new light-weight baggage cabinets, and reduce the weight of cabin and service items. We also gradually increase the purchase of low-carbon/electric vehicles, prioritize the purchase of hybrid vehicles for company vehicles, and replace traditional ground service vehicles to reduce fuel consumption and carbon emissions. We use energy-efficient lighting equipment, install variable

frequency equipment, and replace equipment with high energy consumption. In addition, CAL also prioritizes the use of local ingredients to reduce the carbon footprint of food ingredients during transport. The value of CAL's green procurement in 2021 was affected by the COVID-19 pandemic, reduced number of flights, and a lower demand for hybrid vehicles compared to previous years, and the amount fell by 36.71% compared to 2020. However, CAL remains committed to promoting green procurement and will take real actions to reduce the impact on the environment.

Amount of Green Procurement

(Unit: TWD million)



Note: Green procurement includes Category I, II, and III products prescribed in the Regulations for Priority Procurement of Eco-Products (dated January 15, 2001).

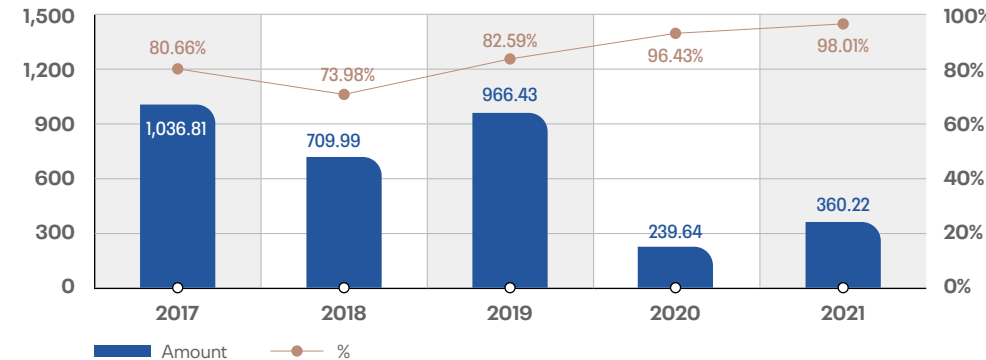
Local Procurement

Except for certain aviation equipment, parts, and operations that are subject to international standards, CAL has managed to source parts from local suppliers (Taiwan, Penghu, Kinmen, and Matsu) to support the local economy. For instance, we use local agricultural products from Taiwan for the welcome drink for business class passengers. It reduces the carbon footprint and also helps protect the environment. The value of local procurement in 2021 rose by 53.37% compared to 2020 and the percentage of local suppliers remained 98%. CAL has remained committed to local procurement despite the impact of the pandemic.

Amount of Local Procurement

(TWD million)

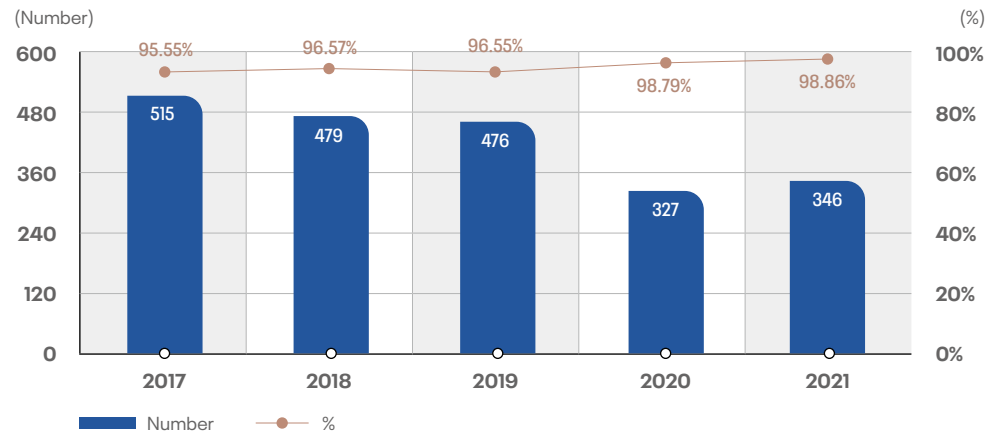
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- Contents
- Preface
- 1 Sustainability Management
- 2 Value Creation
 - 2-1 Trust
 - 2-2 Human Resources
 - 2-3 Cooperation
 - 2-4 Environment
 - 2-5 Society
- 3 Corporate Governance
- ESG Data and Appendix

Number of Local Suppliers



Note 1: The statistics include the Administration Division and the maintenance park and exclude the independent procurement of the fleet, In-flight Supply Chain & Marketing Division, and the Ground Services Division.

Note 2: Aircraft parts are not included. They are subject to special certification.

2. Risk Assessment of Supply Chain Sustainability

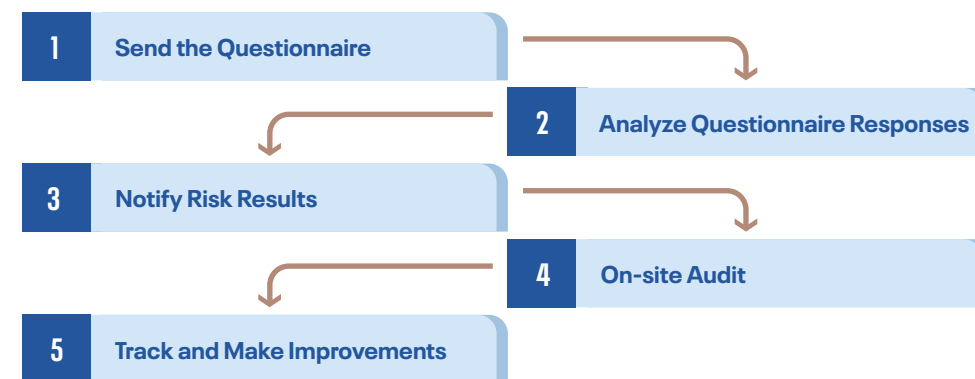
To strictly control supply chain sustainability risk, CAL has conducted a survey for supply chain sustainability risk and formulated our Sustainability Assessment Questionnaire (SAQ) since 2015 based on international initiatives and evaluations such as the GRI Standards, ILO, UNGC, Dow Jones Sustainability Index (DJSI), CDP, and the Universal Declaration of Human Rights. CAL also established a sustainable supply chain management system to improve the accuracy of the results of the SAQ in 2017, the functions of which include specifying the definition of critical suppliers, conducting the Sustainability Assessment Questionnaire (hereinafter SAQ), formulating regulations for review and designing relevant forms, setting different goals for short-term, mid-term, and long-term reviews, and improving the follow-up tracking mechanism. CAL continued to strengthen supply chain management in 2021. CAL identified supplier risks at the beginning of the year, conducted due diligence in the middle of the year, and reviewed the improvements at the end of the year. Supplier training was also organized to fully control suppliers with high risks, and on-site audits were conducted further to reduce supply chain sustainability risks.

As for the SAQ, China Airlines surveyed a total of 38 critical tier 1 suppliers in 2021, which accounted for 61.78% of the total purchase amount of the tier 1 suppliers, and the questionnaire response rate was 71.05%. In addition, China Airlines also investigated 3 critical tier 2 suppliers. The recovery rate was 66.67%. According to the results of the SAQ, the average score of the suppliers in 2021 was 88.17. The average scores in the four dimensions (please refer to the note) were between 79 and 94 points, showing that most of the suppliers have incorporated the concept of sustainability into these four dimensions. Due to the impact of the pandemic from 2020 to 2021, the environmental

score fell and CAL will continue to promote environmental sustainability practices and concepts in the annual supplier conference.

Note: "Governance" includes ethics and regulatory compliance. "Environment" refers to environmental protection. "Society" includes human rights and labor conditions, and occupational safety and health. "General" includes quality and safety and information security.

Procedure of Identifying Risk of Supply Chain Sustainability



Supply Chain Sustainability Risk Assessment Implementation Status

Suppliers	2020	2021
Tier 1 Suppliers	904	708
Critical Tier 1 Suppliers (Share of Total Procurement Spent %)	63 (66%)	38 (62%)
Critical Non-tier 1 Suppliers	2	3
Risk Assessment of Supply Chain Sustainability	2020	2021
Tier 1 Suppliers Assessed Annually	63	38
Critical Non-tier 1 Suppliers Assessed Annually	2	3
Tier 1 Suppliers Assessed in the Last 3 Years (Percentage of Total Tier 1 Suppliers)	103 (11.39%)	162 (22.88%)
Critical Non-tier 1 Suppliers Assessed in the Last 3 YYears (Percentage of Total Critical Non-tier 1 Suppliers)	2 (100%)	3 (100%)
Suppliers with High Sustainability Risk	2020	2021
Number of Tier 1 Suppliers Classified as High-risk (Percentage of Total Tier 1 Suppliers)	2 (0.22%)	0 (0%)
Number of Critical Non-tier 1 Suppliers Classified as High-risk	0	0



Contents

Preface

1 Sustainability Management

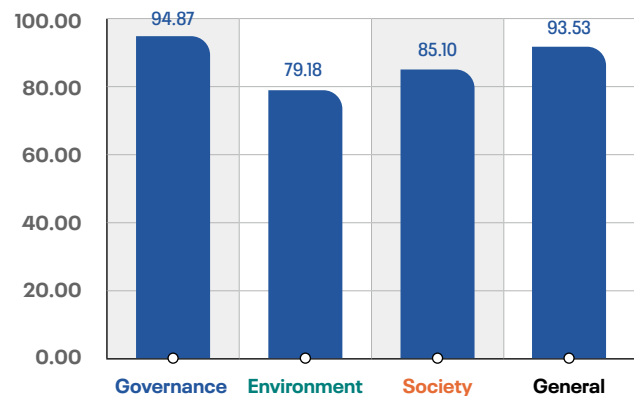
2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

2021 Risk Survey of Supply Chain Sustainability (Unit: Score)



Overall Performance of Supply Chain Sustainability

- In 2021, the score of supply chain sustainability risk assessment was 88.17 points.
- **Governance:** The score (94.87) was an increase compared to the previous year (93.92) and has been the highest score overall. It shows that critical suppliers generally have internal management mechanisms.
- **Environment:** The score (79.18) was a decrease compared to the previous year (84.91). CAL will continue to work hard on advocacy for the environment and follow up on the performance of suppliers in terms of environmental protection.
- **Society:** Although the score (85.10) was an improvement compared to the previous year (84.06), there remains room for improvement. This area will still be the focus of our support for suppliers.
- **General:** The score (93.53) was higher compared to the previous year (91.46), and the second highest score overall. We will continue our requirements and regularly review suppliers to ensure that they have set up quality management and information security systems.

Improvements to Be Made

- **Governance:** We will continue to require suppliers to implement ethical and legal regulations and improve their governance.

- **Environment:** We will provide CAL environmental sustainability practices as reference for suppliers. We will also continue to provide training for suppliers to strengthen their understanding of environmental issues and encourage them to develop environmental management policies. We will also review and advise suppliers that have high environmental risks.
- **Society:** Suppliers have performed relatively poor in terms of occupational safety and health and CAL will closely follow up and provide assistance.
- **General:** We will continue to require suppliers to improve quality management and information security.

Improvement Action

CAL will continuously assess the risks to its suppliers using SAQ to review the performance of suppliers in other areas. We will also expand the scope of risk survey to identify suppliers with high risk with greater accuracy. With the existing audit system, CAL will seek to understand suppliers' real problems and provide guidance for them to take corrective measures. CAL will also keep communicating information on sustainable development and the impact of the pandemic to suppliers and provide training to enhance supply chain sustainability.

3. Sustainable Supply Chain Audit

According to the SAQ analysis results, there were no overall high-risk suppliers in 2021 but 3 critical tier 1 suppliers exhibited high environmental and social risks, 1 critical tier 1 supplier exhibited high governance risks, 3 critical tier 1 suppliers exhibited high environmental risks, and 1 critical tier 1 supplier exhibited high social risks. According to CAL's follow-up audits of the SAQ analysis for 2022, there were no suppliers with overall high risks. To learn more about the implementation status of sustainable practices of our supply chain partners, CAL has set up different audit plans for sustainable supply chain management. As of 2021, we have completed audits for 62% of critical tier 1 suppliers. CAL's audits are conducted on-site, in written format, or by correspondence. The method is determined based on the supplier's location, characteristics, and border control measures in response to COVID-19. The audit survey in 2021 showed that suppliers require

improvements such as the establishment of an environmental management system, classification and recycling for recyclable waste, monitoring suppliers' environmental performance, and providing regular training on environmental management and regulations for employees. After CAL requested follow-up and training, half of the critical tier 1 suppliers have made significant improvements in environmental management. No critical tier 1 suppliers have terminated the partnership in 2021. CAL will continue to enhance support, follow-up, and requests for improvements for these environmental and social issues.

Supply Chain Sustainability Audit Implementation Status

Critical Suppliers (Tier 1 and Non-tier 1) Assessed (Percentage of Total Critical Suppliers)	2020	2021
Annually	26.15%	78.04%
At Least Once Every 3 Years	44.62%	21.96%
Total	70.77%	100%
Suppliers with High Sustainability Risk Assessed (Percentage of Total Suppliers with High Sustainability Risk)	2020	2021
Annually	100%	0% (No high-risk suppliers this year)
At Least Once Every 3 Years	0%	0%
Total	100%	0%
High Sustainability Risk Suppliers with Identified Gaps with Corrective Action Plans That Have Improved Their ESG Performance	100%	0% (No high-risk suppliers this year)

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

4. Assisting Suppliers Reduce Risks

Convene Annual Supplier Conference

CAL convened the sixth annual sustainable supplier conference with 34 domestic suppliers (40 partners) on December 29, 2021. In the conference, experts shared the global trends of sustainable development and supply chain management. CAL elaborated on how it promoted the sustainable supply chain for the year and its future goals and plans for sustainable supply chain. CAL also explained its targets and plans for the sustainable value chain. CAL explained the correct concepts for work to supply chain partners through workshops and interactions. CAL will also place more emphasis on the environmental dimension and social dimension based on the result of the SAQ of the year and focus on improvements in future supplier conferences.



In Alignment with the Global Trend, Continuing Education and Training Courses on Sustainability

CAL will continue to provide training on sustainability for procurement personnel to enhance their knowledge of sustainability. This has been one of CAL's important goals for sustainability each year. In 2021, relevant procurement personnel continued to participate in training on the sustainable supply chain to better understand the standards, management practices, and current conditions in the international supply chain, and how to respond to the impact of the COVID-19 pandemic on the global supply chain. We also focused on sustainability management to ensure that procurement personnel obtain the latest information on sustainability and adjust work plans for the sustainability of the supply chain. CAL will continue to invite external experts to provide education and practical training courses on sustainability audits for all procurement personnel so that future procurement can be conducted in accordance with CAL's sustainable supply chain management policies and operations of the management system.

Future Plans

CAL continuously obtains information on the sustainability management status of supply chain partners through questionnaires every year, and work on all aspects of sustainable supply chain management to meet the short-term and medium-term goals of completing the risk assessment of tier 2 suppliers by 2023 and reviewing all tier 1 suppliers by 2025.

CAL will require its procurement personnel to attend three sustainability courses or seminars organized by external entities. For external entities, CAL will continue to provide suppliers with sustainability training to help their procurement personnel learn more about sustainability.

In terms of the goals for 2022, CAL seeks to communicate with suppliers in the suppliers conference and discuss concrete measures taken by CAL such as green building, use of water resources, and eco services for environmental protection and carbon reduction. We will continue to help suppliers understand sustainability requirements for ESG. CAL will build on the results in 2021 to strengthen suppliers' governance and focus on the impact caused by the pandemic on its sustainable supply chain. We will also communicate with suppliers on-site, in writing, by correspondence, or with other diverse methods.

2-4 Environment



HIGHLIGHTS



6th time received highest scores in environmental management report and climate strategy of DJSI

Received the highest score for the 2020 environmental management report and climate strategy of DJSI for six consecutive years.



8th time in TCSA Climate Leadership Award

Awarded the Climate Leadership Award for eight consecutive years since 2014.



10th consecutive year in response to CDP and awarded Leadership rating

CAL has responded to the CDP climate change questionnaire for 10 consecutive years since 2012 and actively promotes and implements supply chain / value chain management. Ranked Leadership in CDP Supplier Engagement Rating (SER) in 2021.



The only airline to receive the Excellence Award for Low-Carbon Products from the Environmental Protection Administration, Executive Yuan

CAL Group's Mandarin Airlines offers comprehensive low-carbon services which reduced its carbon footprint by more than 30% within 3 years and received a Carbon Label. It became the only airline company to participate in the GreenPoint program of the Environmental Protection Administration and it also received the Excellence Award for Low-Carbon Products from the EPA.



1st to use Sustainable Aviation Fuel (SAF)

CAL used SAF for the new energy-efficient aircraft A321neo after using SAF for new A350 aircrafts in 2017, becoming the first airline in Taiwan to use SAF.



1st to announce target for Net-Zero Carbon Emissions by 2050

CAL became the first airline in Taiwan to announce the target for net zero emissions by 2050 and create plans for reducing carbon emissions.



1st to the establishment of an environment, energy, and greenhouse gas inventory management system

First company in Taiwan's transportation industry to establish environment, energy, and greenhouse gas inventory (ISO 14001, ISO 50001, and ISO 14064-1) management system and continues to pass external third-party verification / certification each year.



Received awards for green procurement from Taoyuan City Government

CAL's maintenance divisions and Taoyuan International Airport Service won the 2020 Taoyuan City Green Procurement Award for the Private Sector.



The only airline group in Taiwan to promote green fares

Starting in 2021, Mandarin Airlines and Tigerair Taiwan followed CAL's footsteps and included all domestic and foreign flights into the scope of the ECO Travel carbon offsetting services and became only airline group in Taiwan to promote green fares.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Management Approach GRI 103-1, 103-2, 103-3

Topic of Concern

- **Climate Change Mitigation and Adaptation**
- Green Services and Sustainable Catering
- **Energy Management**
- Resource Management
- Environmental Risks and Business Efficiency Management

Importance of Material Issues

Extreme weather events, changes in consumer awareness, and increased global awareness of air pollution, waste, and noise derived from climate change continue to challenge the operating environment of the aviation industry. As a leading airline in Taiwan, China Airlines is committed to providing passengers and cargo clients with high-quality products and services while fulfilling its commitment to environmental sustainability.

Commitment and Long-term Goals

• Commitment

CAL is committed to abiding by relevant regulations in civil aviation, environmental protection, and energy strengthen risk management mechanisms, actively participating in environmental sustainability-related organizations and initiatives both domestically and abroad, and implementation of the Company's environment and energy policies. CAL continues to strengthen and optimize its own environmental sustainability as its momentum, reducing environmental impact, and cherishing the limited resources on the planet. With its own role, CAL will lead the Group and the aviation industry to jointly protect our planet for the sustainable development of future generations.

• Long-term Goals



2023

1. Improving annual aviation fuel efficiency by 1.5% and achieving carbon-neutral growth (CORSA CNG2020) (net zero emissions by 2050)
2. Reducing carbon emissions in ground operations by 41% compared to 2009
3. Strengthening decision-making mechanisms to integrate climate-related financial disclosure (TCFD) information
4. Reducing general waste (non-recyclable) by 5% compared to 2018
5. Increasing Industrial waste recycling ratio to 43%
6. Reducing paper consumption by 14% compared to 2018

7. Reducing water consumption in ground operations by 5% compared to 2018
8. Embargoing transport of endangered species and prohibiting use of illegal species as food ingredients
9. Reducing total cabin waste by 25% compared to 2018
10. Reducing use of single-use plastic (SUP) for in-flight services by 50%
11. Reducing the per capita food waste of in-flight service by 5% compared with 2020

2025

1. Improving annual aviation fuel efficiency by 1.5% and achieving carbon-neutral growth (CORSA CNG2020) (net zero emissions by 2050)
2. Reducing carbon emissions in ground operations by 44% compared to 2009
3. Implementing and optimizing internal carbon pricing
4. Reducing general waste (non-recyclable) by 7% compared to 2018
5. Increasing industrial waste recycling ratio to 45%
6. Reducing paper consumption by 30% compared to 2018
7. Reducing water consumption in ground operations by 7% compared to 2018
8. Embargoing transport of endangered species and prohibiting use of illegal species as food ingredients
9. Reducing total cabin waste by 50% compared to 2018
10. Reducing use of single-use plastic (SUP) for in-flight services by 90%
11. Reducing the per capita food waste of in-flight service by 10% compared with 2020

2030

1. Improving annual aviation fuel efficiency by 1.5% and achieving carbon-neutral growth (CORSA CNG2020) (net zero emissions by 2050)
2. Reducing carbon emissions in ground operations by 50% compared to 2009 (net zero emissions by 2050)
3. Support the creation Taiwan's sustainable aviation fuel strategy
4. Reducing general waste (non-recyclable) by 12% compared to 2018
5. Increasing industrial waste recycling ratio to 50%
6. Reducing paper consumption by 50% compared to 2018
7. Reducing water consumption in ground operations by 10% compared to 2018
8. Embargoing transport of endangered species and prohibiting use of illegal species as food ingredients
9. Reducing total cabin waste by 65% compared to 2018
10. Eliminate all single-use plastic (SUP) products for in-flight services
11. Reducing the per capita food waste of in-flight service by 25% compared with 2020

Unit in Charge

Corporate Sustainability Committee — Environmental Task Force (Corporate Environmental Committee)

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Management Mechanism

- The Board of Directors and its Risk Management Committee convene a meeting every quarter
- The Corporate Sustainability Committee convenes a meeting at least twice every year
- The Corporate Environmental Committee convenes a meeting every quarter on a regular basis
- Include environmental and energy risk issues in routine executive reports

- CAL conducts ISO 14001, ISO 50001, and ISO 14064-1 third-party audit and verification every year
- CAL responds to DJSI, FTSE and CDP on a regular basis

Grievance Mechanism

CSR — E-Mail: csr@china-airlines.com



Stakeholder Contact

Objectives and Plans

Task	2021			2022 Objectives
	Objectives	Performance	Achievement	
Optimizing Corporate Environment and Energy Management	Updated the energy management system and obtained ISO 50001:2018 certificate	Completed third-party verification	100%	<ul style="list-style-type: none"> • Establishing and fulfilling environmental objectives for in-flight service • Optimizing waste management operations • Improving water balance information and management operations • Implementing 69 action plans for environment and energy management
	<ul style="list-style-type: none"> • Optimizing energy and resource information management for outstations • Continuing to getting involved external evaluation and policy engagement 	<ul style="list-style-type: none"> • Completed the environmental risk and opportunity assessment for outstations • Completed the responses and engagements for DJSI, CDP, Corporate Governance Review, TCSA, and other questionnaires on environmental issues 	100%	
	Implementing corporate environmental management and launching 69 environmental protection and energy conservation action plans	Completed 71 environmental protection and energy conservation action plans	103%	
Consolidating Climate Risk Management and Carbon Reduction	Improving fuel efficiency to 0.2547 ton / 1,000 RTK	Achieved fuel efficiency of 0.2442 ton / 1,000 RTK	104%	<ul style="list-style-type: none"> • Improving fuel efficiency to 0.2406 ton / 1,000 RTK • Reducing GHG emissions in ground operations by 41% compared to 2009 • Implementing TCFD operating procedures and carbon reduction compliance • Continuous implementation of ISO 14064-1:2018 verification • Launching SAF usage and expand renewable energy facilities
	Target for ground operations Scope 1 GHG emissions 4,334 tons of CO ₂ e	Actual ground operations scope 1 GHG emissions 2,897 tons CO ₂ e	133%	
	Target for ground operations Scope 2 GHG emissions 17,545 tons CO ₂ e	Actual ground operations scope 2 GHG emissions 16,697 tons CO ₂ e	105%	
	<ul style="list-style-type: none"> • Increasing the TCFD disclosure capacity and execution of the Company • Promoting CORSIA, EU ETS, and UK ETS compliance • Completing ISO 14064-1:2018 transition • Expanding the Green Point Discount for Ticket Fare Program 	<ul style="list-style-type: none"> • Published the TCFD report and organized 2 workshop sessions • Completed CORSIA / EU ETS / UKETS emission monitoring, reporting, verification (MRV) • Completed the ISO 14064-1 transition training and amendment of procedures • Incorporated Mandarin Airlines and Tigerair Taiwan into the ECO Travel Carbon Offsetting Program 	100%	
Building Capacity for Value Chain Environmental Management	<ul style="list-style-type: none"> • Optimizing the mechanisms for value chain environmental management • Promoting the disclosure and communication on the performance of the value chain environmental management policies • Organizing value chain environmental management training programs and meetings 	<ul style="list-style-type: none"> • Completed the annual value chain information survey • CSR information disclosure on value chain environmental performance • All value chain companies have set at least two goals for environmental management • Organized 1 value chain environmental management training program 	100%	<ul style="list-style-type: none"> • Continuous implementation of the value chain risk survey • Continuous promotion of value chain environmental information disclosure • Continuous organization of value chain environmental management training programs
Strengthening Awareness and Brand Image of Corporate Environmental Protection	<ul style="list-style-type: none"> • Organizing professional corporate environmental and energy-management training • Organizing the 2021 environmental training and satisfaction survey for all employees • Continuing to encourage employee for environmental proposal • Promoting diversified channels of customer communication of environmental protection • Joining and implementing environmental protection initiatives 	<ul style="list-style-type: none"> • Organized three sessions of environmental and energy management training • Organized 4 environmental protection activities for all employees • Posted 4 environmental protection advocacy posts on Facebook • Provided branch companies across the globe with environmental protection statements • Incorporated Group companies Mandarin Airlines and Tigerair Taiwan into the ECO Travel Carbon Offsetting Program 	100%	<ul style="list-style-type: none"> • Organizing 3 professional corporate environmental and energy-management training programs • Organizing the 2022 environmental training and satisfaction survey for all employees • Implementing external environmental protection advocacy programs and engagement • Continuous participation in evaluations and implementation of environmental protection initiatives • Expand ECO Travel Carbon Offsetting Program to the cargo service platform

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

2021 Environmental Performance

Item	Unit	Emissions / Consumption / Generated	
Category 1 GHG Emissions (ORIG Scope 1)	Tons CO ₂ e	5,878,428	
Category 2 GHG Emissions (ORIG Scope 2)	Tons CO ₂ e	16,697	
Category 3-6 GHG Emissions (ORIG Scope 3)	Tons CO ₂ e	3,174,662	
Air Pollutants (SO _x)	Passenger Aircraft	Ton	27.43
	Cargo Aircraft	Ton	16.06
Air Pollutants (NO _x)	Passenger Aircraft	Ton	34.18
	Cargo Aircraft	Ton	167.43
Aviation Fuel (Non-Renewable Energy)	Ton	2,321,341	
Electricity	MWh	33,260	

Item	Unit	Emissions / Consumption / Generated	Amount Renewed / Recycled	Percentage of Savings / Recycling
Renewable Power (Solar Photovoltaic)	MWh	-	127	-
Elevator Power Regeneration	kWh	-	889	-
Water Resources	Thousand tons	118.42	14.23	12%
Wastewater (Organic & Heavy Metals)	Thousand tons	16.94	2.81	17%
Cabin Waste	kg	501,124	84,426	16.85%
Ground Waste (Excluding Hazardous Industrial Waste)	kg	636,400	188,790	29.67%
Ground Waste (Including Hazardous Industrial Waste)	kg	649,560	188,790	29.06%

2-4-1 Governance of Environmental Sustainability

Improving the Policy and Structure of Environmental Governance

CAL has established the environmental and energy management principles (compliance with environmental laws and regulations, resource conservation, improvement in eco-efficiency, and

fulfillment of corporate social responsibility) and the [Environmental and Energy Policy Statement](#) according to the [China Airlines Sustainable Development Best Practice Principles](#) promulgated by the Board of Directors; in addition, CAL has integrated [UN SDGs](#) into its instructional strategies to align future business operations with the sustainable development concepts of environmental friendliness, low-carbon emissions, and energy conservation for a better future.

CAL was the first Taiwanese airlines to establish the Corporate Environmental Committee in 2011. The President represents the top management, and the Corporate Safety Office acts as the executive secretary. Five environmental management committees were established under the Corporate Environmental Committee to take charge of environmental, energy, and climate risk and opportunity management pertaining to inflight service, maintenance, and cargo operations as well as the administration and operation of the headquarters and branches based on the risk management system established in line with the international standards. Based on the fact that aircraft fuel is a major energy source for the company, the aircraft fuel-saving group will be adjusted to an independent committee at the same level as the five major environmental management committees in 2021. And changed its name to "Aircraft Fuel Management Team", continued to monitor fuel efficiency, and implemented the goal of improving fuel efficiency. The Corporate Environmental Committee coordinates and integrates countermeasures and resources for environmental, energy, and climate risks and opportunities in the management meetings held every quarter and reports key resolutions to the Board of Directors in routine meetings of the Board and its committees. For specific issues, functional task forces, including the Carbon Management Task Force, the Sustainable Aviation / Alternative Fuels Task Force, and the TCFD Task Force (Note), have also been set up for cross- departmental cooperation and flexible deployment of resources.

The Company continues to uphold the six major strategies for sustainability including "Fleet and Network" and "Brand Awareness". CAL is committed to the creation of an efficient fleet network and resilient operations to combat extreme weather and changes in the business environment. We seek to create a sustainable brand that protects the environment and improves internal and external brand awareness. Overall, CAL has built a sound corporate environment and energy management model in the aspects of policy, organization and management system based on international trends and risk management practices. From a life cycle perspective, CAL takes into account the context of the organization operations (including day-to-day operations of the Company and existing or new products and services), internal / external issues, and needs and expectations of stakeholders and manages environmental, energy, and climate risks and opportunities appropriately. CAL aims to lead affiliate companies of the Group, suppliers, contractors, and other value chain partners to work together in promoting environmental protection operations and ensure that the environmental sustainability policy is implemented. In the future, CAL will introduce TCFD step by step to strengthen the connotation of environmental management.

Note: TCFD refers to Task Force on Climate-related Financial Disclosures.

Refer to [Environmental Governance — China Airlines Corporate Sustainability Website](#)

Contents

Preface

1 Sustainability Management

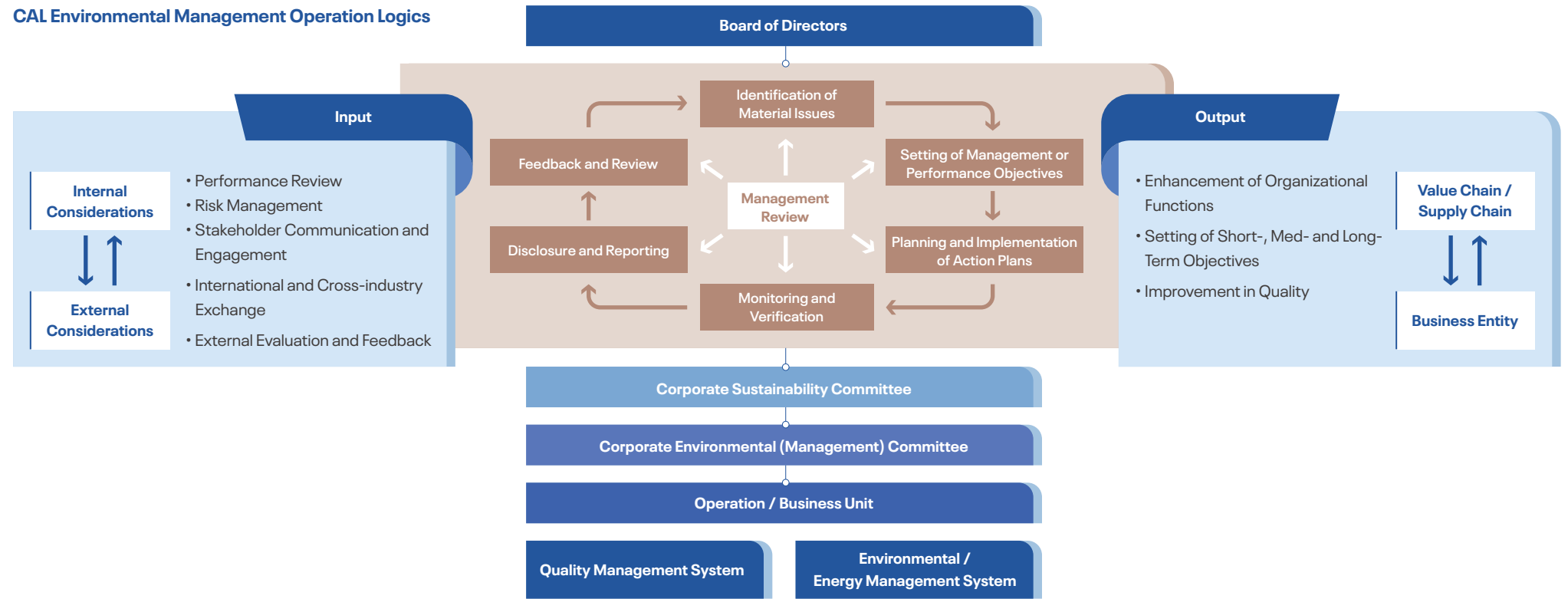
2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

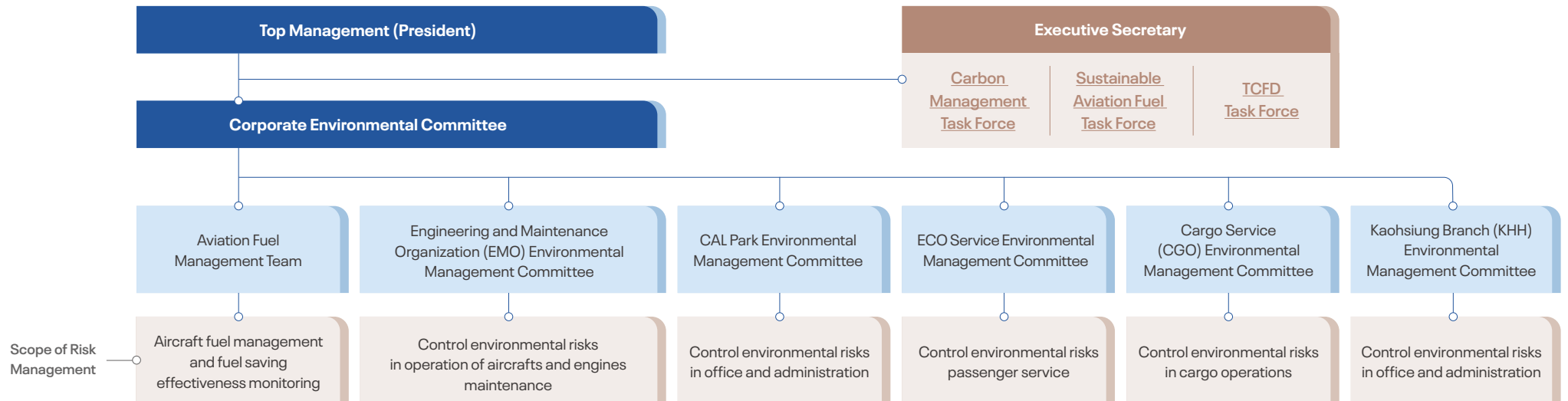
3 Corporate Governance

ESG Data and Appendix

CAL Environmental Management Operation Logics



Corporate Environmental Committee Organization





Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Implementing Environmental and Energy Management Systems

CAL became the first airline company in Taiwan to set up corporate environmental risk management mechanisms. CAL has introduced many international standard management systems since 2009 to establish sound corporate environmental management mechanisms covering GHG, environmental management, and energy management. In addition, to fully integrate the benchmarking conceptualization for sustainable development of international enterprises, CAL has continued to introduce the life cycle perspective since 2017 to fully understand the context of corporate operations, include value chain risk management, take stakeholders' concern into account, and strengthen the identification and operational control of various environmental impacts and energy use.

Standards for CAL's Environmental Management Systems

Standard	Time of Introduction	Scope
ISO 14064-1 Greenhouse Gas Inventory Requirements	<ul style="list-style-type: none"> • Introduced ISO 14064-1:2006 in 2009 • Completed ISO 14064-1:2018 transition in 2021 	<ul style="list-style-type: none"> • Global Aviation Fuel • Ground Operations in Taiwan, including CAL Park, EMO, Taipei Branch, Songshan Office, and Kaohsiung Branch
ISO 14001 Environmental Management System	<ul style="list-style-type: none"> • Introduced ISO 14001:2004 in 2012 • Completed ISO 14001:2015 transition in 2017 	<ul style="list-style-type: none"> • Aircraft / Engine Maintenance • Flight Operations Management • Cargo Service • Passenger Service
ISO 50001 Energy Management System	<ul style="list-style-type: none"> • Introduced ISO 50001:2011 in 2013 • Completed ISO 50001:2018 transition in 2019 	<ul style="list-style-type: none"> • Aircraft / Engine Maintenance • Flight Operations Management

Implementing Environmental and Energy Management Principles and Policies



China Airlines Sustainable Development Best Practice Principles

Improving Eco-Efficiency

Fulfilling Corporate Social Responsibility

Promoting environmental and energy conservation education to foster employees' eco-awareness

1. Develop education materials and organize activities to promote environmental education for employees
2. Create diverse channels of communication for employees (including outstations) on environmental issues and improve the environmental protection awareness
3. Establish incentive plans to encourage employees to achieve and promote environmental protection

1. Organize environmental education for employees across the globe and new employees, and provide training (e-learning) for personnel responsible for environmental and energy management system operations
2. Communicate with units and employees whenever necessary to remind them of the environmental impact of their business activities and the Company's response measures
3. Organize internal and external professional training for environmental/energy management
4. Organize environmental protection seminars / contests, and charity events, and make good use of internal / external communication platforms (e.g., Employee Mailbox and official FB page) to promote environmental protection knowledge
5. Establish the Rules of Environmental Protection and Energy Conservation for Branch Offices and use channels such as DM conferences and KK meetings to strengthen outstation environmental management and increase the environmental protection awareness of employees in outstations
6. Organize activities such as quizzes for prizes and satisfaction surveys to increase employees' environmental protection awareness and reward them for providing creative environmental protection measures

Establish a green supply chain risk assessment and management system

1. Include environmental protection and sustainability clauses into supplier contracts
2. Establish a supply chain risk assessment system and implement audits from time to time to formulate improvement measures for environmental and energy risks
3. Set up a communication platform for product and service suppliers and implement environmental communication
4. Provide training resources to enhance environmental energy management capacity in the value chain

1. Incorporate the Supplier Code of Conduct and environmental sustainability clauses into outsourcing contracts to ensure that the environmental impact of services / products has been fully considered
2. Continue to execute the annual survey of environmental risks of the Group and key suppliers
3. Organize communication meetings and training courses for the Group to strengthen the capacity for environmental / energy management
4. Require companies of the Group to improve their environmental and energy management systems each year and formulate and disclose their environmental policies and performance targets
5. Organize supplier conferences and regular business meetings (e.g., monthly meetings of contractors) to communicate CAL's sustainability and environmental protection requirements

Creating a low-carbon operating environment to establish continual improvement of environmental protection and energy efficiency

1. Monitor trends in technological developments and regulatory developments in Taiwan and abroad. Target different business activities such as operation management / equipment maintenance, passenger / cargo transportation services, and maintenance operations to promote the following:
 - (1) Set environmental performance targets to ensure continuous improvement in environmental performance
 - (2) Promote corresponding environmental protection and energy conservation measures to reduce the impact on the environment
2. Use low-carbon and renewable energy

1. Optimize the operation data monitoring and management of equipment with high energy consumption
2. Continue to promote fuel-saving measures and expand services and digital operations
3. Strengthen the capacity for managing carbon assets and offsetting operations
4. Increase the installed capacity of renewable energy (e.g., solar power, etc.) and promote carbon sink projects such as afforestation
5. Continue to use SAF for the delivery flight of new aircrafts, share operational experience, and collaborate with Taiwan's industries, government, and research institutions to facilitate the formation of Taiwan's SAF development strategy

Supporting green design and procurement to promote sustainable development

1. Review and improve service procedures to promote environmentally friendly services
2. Actively promote green procurement to reduce the upstream and downstream environmental impact
3. Include environmental protection / energy saving performance as evaluation items for selection and procurement
4. Include environmentally friendly and sustainable products into the sales of duty-free products
5. Continue to promote the green consumer culture

1. Implement rolling reviews of services and related operating procedures for providing support, and continue to expand mobile, digital, and high-tech operations.
2. Search for SUP alternative products, control meal losses, and reduce cabin waste
3. Expand green procurement KPI and operational performance, use local ingredients / raw materials, environmental protection labels, and FSC-certified products to reduce raw material consumption and the environmental impact of logistics
4. Work with suppliers:
 - (1) Increase the proportion of certified environmentally friendly products among the in-flight service products
 - (2) Continue to develop environmentally friendly products
5. Continue to expand the scope of the "Green Fares - Carbon Offsetting Service" and strengthen marketing
6. Use diverse platforms such as in-flight videos, social media, and official websites to promote diverse events with themes that include corporate environmental sustainability ideas and performance, environmental and ecological conservation, and green consumption to increase customer awareness of environmental protection and green consumption

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Identification of Environmental Risks and Opportunities GRI 201-2

CAL has completed the following environmental and risk opportunity matrix at the present stage through the aforesaid enterprise risk management framework and platform. CAL has included these nine issues in the scope of its key corporate environmental risk management for active control and response. Other issues will also receive attention through the operation of corporate environmental management system.

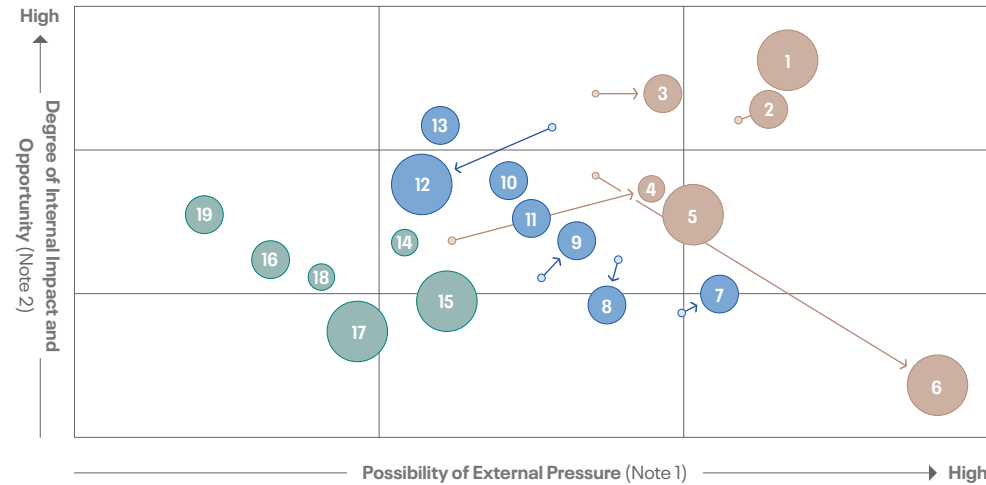
1. Aviation carbon emission management
2. Climate change adaptation
3. Aircraft energy efficiency improvement
4. New technology and energy development
5. Ground operation energy (carbon) management
6. Single Use Plastic (SUP)
7. Cabin waste control
8. Aircraft takeoff and landing noise control
9. Ground water resources management
10. Toxic and chemical substance control

11. Waste water and sewage control
12. In-flight drinking water management
13. Ground operation waste control
14. Green supply chain management requirements
15. Ground operation air pollution control
16. Aircraft air pollution control
17. Illegal wildlife transport control
18. Circular economy and innovation model
19. Passenger environmental protection awareness improvement

Material Environmental Risk Topic	Risk	Opportunity	Management Method
1. Aviation carbon emission management	Increasingly strict international carbon emissions regulations will increase the Company's operational costs	Grasp the development trend of carbon rights and manage properly to increase revenue	Actively participate in international conferences to keep abreast of latest developments; strengthen the management system and the carbon management team's response capabilities
2. Climate change adaptation	Increasing frequency of extreme weather events will impact the Company's daily operations	Proper response will strengthen corporate resilience and reputation	Continue to improve the Company's ability to predict and respond to climate change, as detailed in 2-4-2 Climate Change Mitigation and Adaptation
3. Aircraft energy efficiency improvement	Accelerate the introduction of new generation energy efficient aircraft and fuel-saving technologies which will increase operational costs	Improve aircraft fuel efficiency while reducing fuel consumption and carbon emissions, which will reduce operational costs	Replace aircraft, introduce fuel-saving technologies / sustainable fuels, improve the passenger load factor, as well as optimize routes and air traffic management operations, as detailed in the CSR website
4. New technology and energy development	The aviation industry is governed by strict regulations and certification requirements, and it takes a longer period of time to adopt new technologies and new energy sources	Effective reduction of fuel consumption and carbon emission volume can increase operations efficiency and reduce operating costs	CAL began preparation for introducing next-generation energy-efficient aircraft (e.g., A321neo) and fuel saving technologies, and use SAF to promote the development of sustainable aviation fuel in Taiwan
5. Ground operations energy management	Strict regulations on energy consumption will increase costs	Improve energy efficiency in office and ground operations, which will reduce operational costs	Formulate an annual improvement plan, and its effectiveness should be evaluated each quarter by the Environmental Committee. Expand the use of renewable energy and increase the installed capacity of renewable energy equipment
6. Single Use Plastic (SUP)	Restrictions on the use of single-use plastic products have been expanded from Europe to other countries / routes, which increase the compliance conditions and costs	Development of items made from sustainable materials can help us grasp opportunities in the circular economy and reduce the number of violations and cost of compliance	Continue to monitor changes in regulations, leverage supply chain and cross-industry cooperation, develop alternative solutions and set reduction targets, and conduct rolling reviews and continuous improvements while accounting for both the Company's operations and supply chain conditions
7. Aircraft takeoff and landing noise control	Stricter regulations will increase the cost of fees	Proper response will strengthen corporate resilience and reputation	Introduce new aircraft models and optimize aircraft approaches to reduce noise pollution
8. Cabin waste control	The use of single-use plastic products and food waste management has gained prominence in many countries while the complexity of operations has increased compliance cost and the response to the COVID-19 pandemic has created public sanitation and waste management issues	Systematic inventory and planning for alternative products and improvement of operating procedures to reduce the risks of violations of regulations and compliance cost, and improve company reputation	Establish a Task Force to monitor management trends and market development of alternatives to set reduction targets and management plans and engage suppliers to develop optimal response solutions; enhance source quality and quantity management and improve terminal processing standards during the disease prevention period
9. Ground water resources control	Lack of water resources affects the Company's operations, which will increase water purchase and replacement costs as well as the risk of operational disruption	Properly manage and use water resources to reduce operational costs and improve the resilience for continued operations	Improve water resources management mechanism, continuously optimize equipment and operating procedures / production processes, and increase the use of recycled rainwater and sewage and water usage efficiency Adopt water-saving technologies and products and reduce the use of water resources

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

CAL Environmental Risk and Opportunity Matrix



- The size of the circle represents the adaptation of CAL to the issue (a larger circle means better action and adaptation).
- Light circles represent data from the previous year and darker circles represent data from this year.
- The arrow indicates the difference in displacement from last year.

Note 1: X-axis represents the possibility of the issue in the global trend of development and control.
 Note 2: Y-axis represents the degree of impact and opportunity of the issue on CAL.

2-4-2 Climate Change Mitigation and Adaptation

Recognizing the direct impact and importance of climate issues on the aviation industry, CAL actively promotes climate change mitigation and adaptation operations. CAL has set three objectives in flight operations and ground operations in response to the voluntary carbon reduction initiatives of the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), and the Civil Aeronautics Administration (CAA) of the Republic of China (Taiwan). We also use it to develop carbon reduction strategies and take appropriate climate adaptation actions to reduce the negative impact of climate change on the Company and grasp opportunities derived therefrom. We conduct an overview of the climate risks and opportunities faced by the Company and optimize related software and hardware facilities, control measures, and response procedures. CAL supported international initiatives and became Taiwan's first airline to publicly sign and adopt the Task Force on Climate-Related Financial Disclosures (TCFD) in 2018. CAL works actively to make TCFD a part of the Company's management system. We assist and complete the translation of TCFD guidelines into traditional Chinese and participated in multiple advocacy campaigns with the industry, government, and academia. We have compiled an independent "[Climate-Related Financial Disclosure Report](#)" since 2020. It is reported to the Board of Directors each year and disclosed on the CSR website.



Concern for Climate Change

Declaration of the Net Zero Carbon Emission Target by 2050 and Formulation of the Carbon Reduction Strategy

CAL participated in discussions on IATA operations in 2021 and leads Taiwan aviation industry to declare its 2050 net zero carbon objectives in Q4. CAL later formulated 5 core strategies for carbon emission reduction (as shown in the figure below; the area of each strategy represents its contribution to carbon reduction). They include: Fuel efficiency improvement (e.g., implementation of various fuel saving and carbon reduction measures and continuous improvement of loading rates), upgraded TCFD operations and emergency response systems, promotion of the use of sustainable aviation fuel (SAF), timely participation in international carbon control mechanisms (e.g., CORSIA), timely introduction of new technologies (e.g., continuous introduction of energy-efficient aircrafts, and the monitoring and evaluation of developments of hydrogen-fueled aircrafts / short-range electric aircrafts, cost of introduction, and timing).

Declaration of the Net Zero Carbon Emission Target by 2050

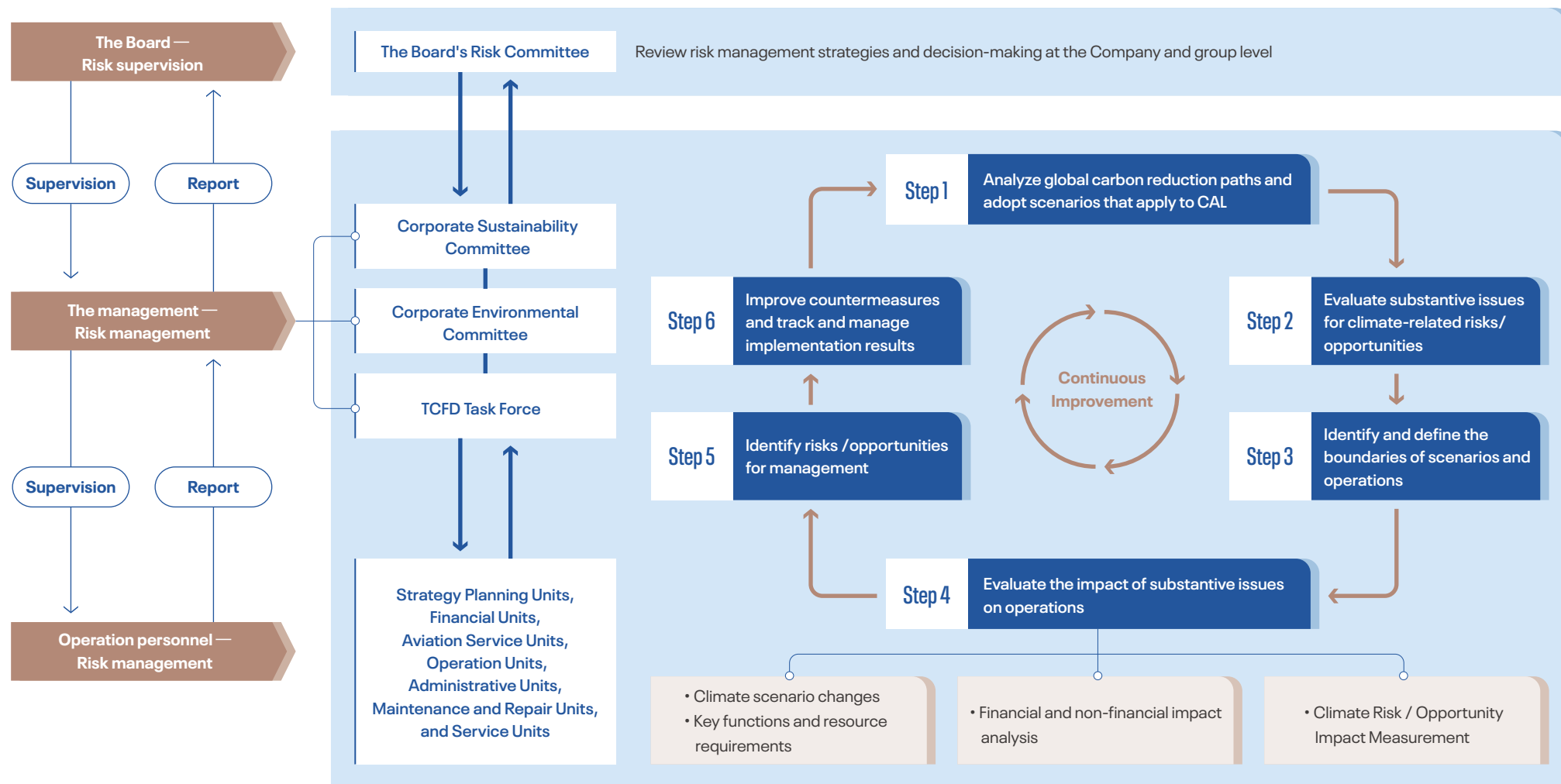


Climate Governance Framework and Risk Management Procedures

CAL established a [TCFD Task Force](#) composed of multiple units in 2019 and the Corporate Sustainability Committee and Environmental Committee have monitored climate-related risks and opportunities. We report key results to the Board of Directors each year for supervision and management. CAL's climate governance framework is shown in the figure below.

CAL has incorporated TCFD operating procedures into the Company's management mechanisms and established internal TCFD operating procedures. We have formulated detailed implementation measures for governance, strategy, risk management, and indicators and targets to continue to improve management and enhance the management of overall climate-related risks and opportunities.

Climate Governance Framework



Analysis of the Impact of Climate Conditions on Business Operations

CAL has referenced the IPCC Sixth Assessment Report (AR6) and analyzed and identified related risks and opportunities that may affect the cost of operations or revenue under 1.5°C, 2°C, and 3°C scenarios based on global operations and destinations, company assets (including aircrafts, offices, and plants), upstream supply chain, and downstream customers. The analysis results are as follows:

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Contents

Preface

1 Sustainability Management

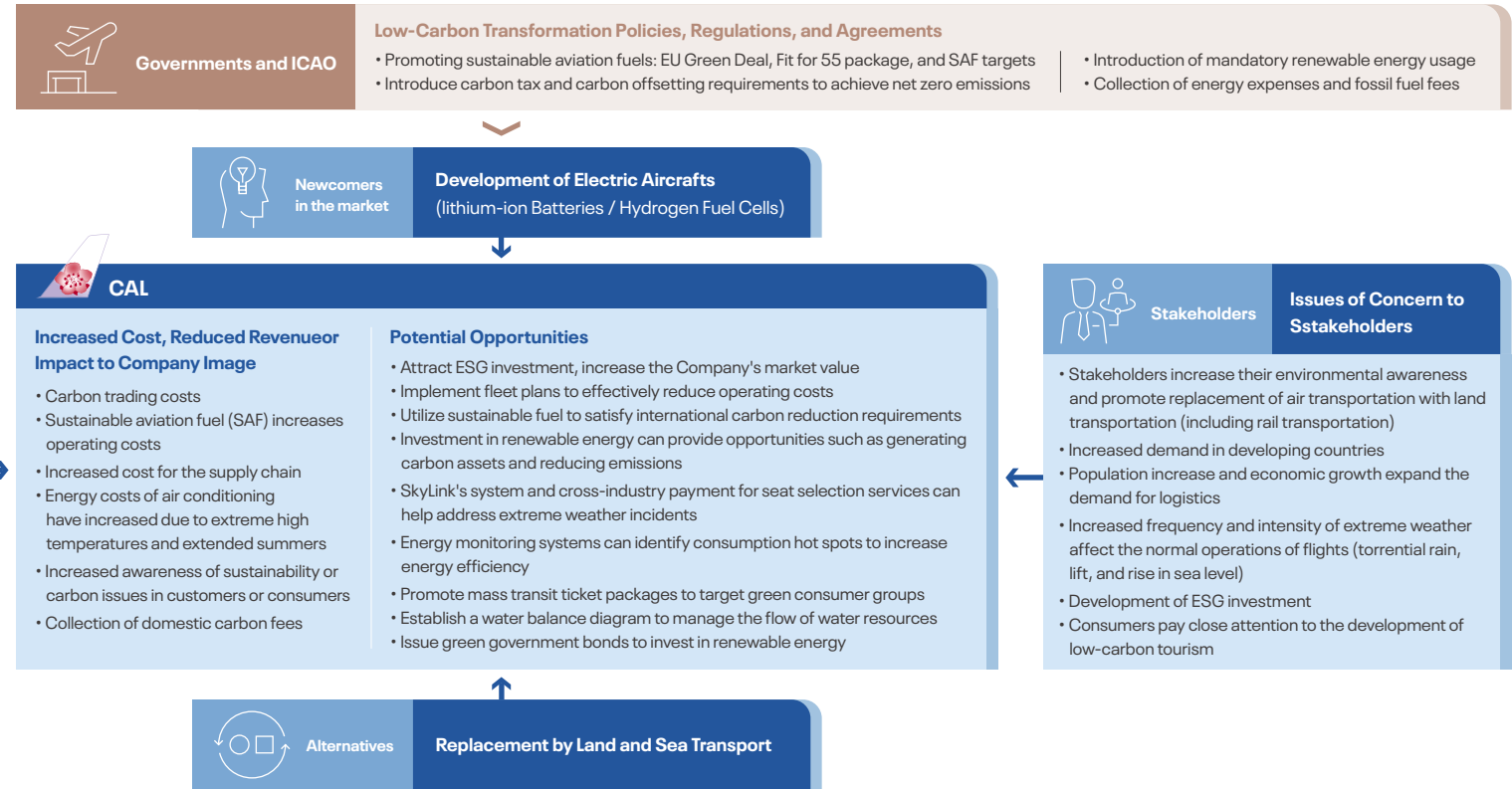
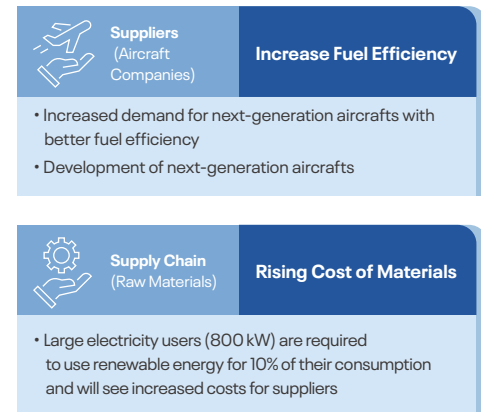
2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Analysis of Impact on Operations (under 1.5°C scenario)



Financial Impact Analysis of Short, Medium and Long-Term Climate-Related Risks and Opportunities

CAL identifies, evaluates, responds, and reviews the critical climate risk matrix analysis for conditions under 1.5°C, 2°C, and 3°C (as shown in the figure below) and quantifies of financial impact in accordance with internal risk management mechanisms. Please refer to the "[CAL Climate-Related Financial Disclosure Report](#)" for the comprehensive short, medium and long-term analysis.

Opportunities

- Fuel saving flight network
- Reduce energy costs
- Improve the Company's image and revenue
- Increase resilience to extreme weather
- Improve management of water resources
- Issue green government bonds to invest in renewable energy
- Invest in renewable energy to achieve net zero emissions targets

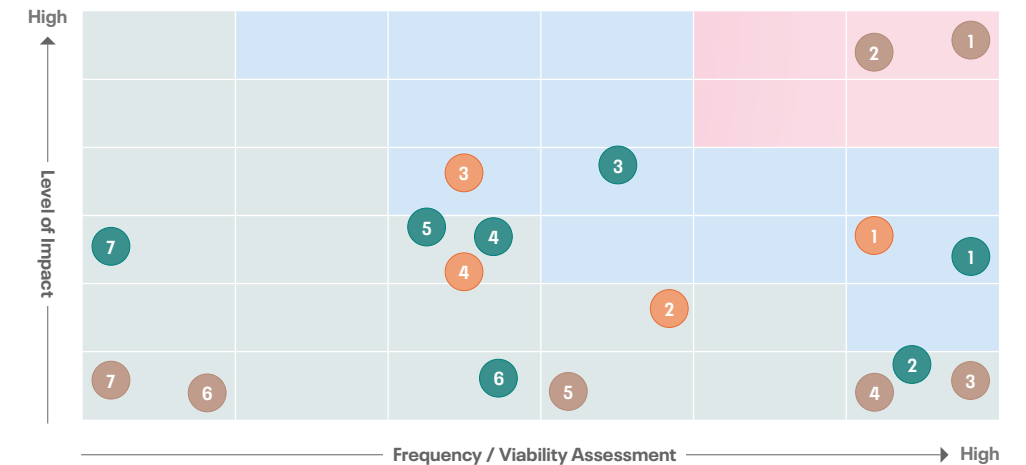
Physical Risks

- Disappearance of routes (low terrain)
- Flooding (torrential rain, rise in sea level)
- Drought
- Impact of extreme weather on aviation

Transformation Risks

- Cost of sustainable fuels
- Cost of carbon offsetting and trading
- Cost of renewable energy
- Supplier management
- Issues of concern to stakeholders
- Impact of high temperatures on increased energy costs
- Impact of carbon tax on the cost of aviation materials

Risk / Opportunity Matrix



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Climate Change Targets and Mitigation and Adaptation Strategy

	Response Item	Objectives	Specific Actions in 2021
Governance	Strengthen Climate Governance	Continue to submit climate governance reports to the Board of Directors	Reported climate governance reports to the Risk Committee of the Board of Directors
	Enhance Management Supervision and Cross Departmental Operations	Meet corporate governance and green finance requirements	<ol style="list-style-type: none"> 1. Introduced TCFD and SASB standards and requirements 2. Continuously implemented rolling management to improve the short, medium, and long-term ESG performance
Strategy	Enhance TCFD Capabilities	Increase the comprehensiveness and depth of quantified financial information	<ol style="list-style-type: none"> 1. Established standard operating procedures (SOP) 2. Establish a cross-unit operation information platform
	Climate Response Strategies and Management	Increased resilience for responding to climate change risks	<ol style="list-style-type: none"> 1. Incorporated climate risks and opportunities into the Company's overall strategies and plans and implement related response actions 2. Incorporated discussions of the impact of climate change in the Company's flight plans, business performance management, and other operations and formulate response strategies and business operation adjustments when necessary
	Participate in Important Engagements	Increase the understanding of international climate change issues and regulatory requirements	<ol style="list-style-type: none"> 1. Participated in international and Taiwan's important climate policy engagement platforms, monitored policy development trends, and gained influence 2. Lobbied the industry, government, and academia to create a development strategy for sustainable aviation fuel in Taiwan
Risk Management	Strengthen the Risk Management Mechanisms for the Corporate Value Chain	Increase resilience for responding to climate change risks	Combined the CAL value chain and the environmental risk management mechanism, continue to implement and expand the GHG inventory and climate and energy risk assessments of key suppliers, strengthened the detection of climate risks and opportunities as well as management, and enhanced the capability of continuous operations in response to extreme weather
	Strengthen the Existing Enterprise Risk Management Mechanism	Implement risk management and strengthen emergency response mechanisms	Incorporated climate factors into the existing enterprise risk management mechanism to strengthen climate risk / opportunity detection, response, and control capabilities in all units
	Respond to International Carbon Transformation Risks	Meet ICAO, EU, and other international regulations for carbon reduction	<ol style="list-style-type: none"> 1. Participated in the carbon offsetting and reduction plans of the international aviation industry 2. Continued to enhance MRV capacity for EU ETS, UK ETS, and CORSIA mechanisms 3. Studied and performed carbon rights / credit transactions
	Implement Carbon Reduction and Energy Transformation	Net zero emissions in operating activities by 2050	<ol style="list-style-type: none"> 1. Enhanced monitoring of electricity consumption and installed dedicated electricity meters on equipment / processes with high energy consumption 2. Continued to perform replacement and renewal of high-energy-consuming facilities 3. Evaluated the installation of renewable energy facilities such as solar PV 4. Enhanced energy management systems and improvement of their effectiveness
Indicators and Targets	Continuously Optimize Green-house Gas Inventory	Expand the scope of the inventory to increase the quality of the data	Conducted an inventory of greenhouse gas emissions ISO 14064:2018 categories 1-6 greenhouse gas emissions inventory inside and outside the organization every year to increase the quality of the data on greenhouse gas emissions
	Implement Carbon Emission Reduction Targets and KPIs	Attain short, medium, and long-term GHG reduction targets and net zero emission target for 2050	Established approximately 71 KPIs in environmental protection and carbon emission reduction and the President convened quarterly meetings of the Environmental Committee to review the outcomes of implementation
	Attain Flight Carbon Reduction Objectives	Attain short, medium, and long-term GHG reduction targets and net zero emission target for 2050	<ol style="list-style-type: none"> 1. Continued to promote plans for fleet update, aircraft weight reduction, flight optimization, and O&M improvement 2. Implemented fleet plans in accordance with medium and long-term business growth and carbon reduction trends 3. Continued to improve aviation fuel efficiency, increased loading rate, and focused on the development of new technologies and new low-carbon aircrafts for purchase at an appropriate time 4. Continued to promote SAF usage
	Increase Fuel Efficiency	Increase the efficiency of company operations and fuel consumption	<ol style="list-style-type: none"> 1. Continued to promote aviation fuel-saving operations to increase 1.5% fuel efficiency each year 2. Optimized route planning and developed the most suitable passenger / cargo fleet in response to the epidemic and market development trends

2-4-3 Achievements in Environmental Sustainability GRI301-1, 303-2, 303-3, 303-4, 303-5

CAL continued to focus on the following tasks: improving environmental and energy management, strengthening carbon management, building capacity for supply chain environmental management, and promoting environmental awareness. The Corporate Environmental Committee, its five environmental management committees, and functional task forces convened meetings regularly or from time to time to improve environmental performance and ecological efficiency. For more information on environmental performance. [Refer to Appendix Environmental Performance](#)

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Task 1 — Optimizing Corporate Environment and Energy Management

In 2017 and 2019, CAL completed the transition to the ISO 14001:2015 standards and ISO 50001:2018, incorporating the "life cycle thinking", "stakeholder engagement," and "risk and opportunity management" into day-to-day operations to continue to enhance environmental and energy performance tracking and management in order to attain the short-term goals for carbon reduction in ground operations and SDGs. However, the COVID-19 epidemic in 2020 to 2021 has affected environment and energy performance. We implemented measures to support disease prevention requirements such as increasing air-conditioning ventilation, organizing work in separate regions / periods, removing certain water conservation faucets, using disposable utensils, and canceling carpool measures, which exacerbated the burden of the environment in operations.

Nevertheless, CAL remains committed to the spirit of "no resource wasting and precision management" while prioritizing disease prevention. We implemented resource conservation operations across the Company including continuous replacement of lighting equipment, increasing the sources of intermediate water recycling, setting up regional for rotation demands and reduce the burden of the environment. In addition to continuous collection of data on outstation business activities, we also used the opportunity to strengthen resource management and performance evaluation of the system. We implemented measures included the decommissioning of 747-400 passenger aircrafts, installation of electricity meters for major energy usage, installation of water meters at water consumption points, tracking solar energy power generation efficiency, and full inventory and deployment of resource recycling facilities as we prepare for the recovery of demand in the future.

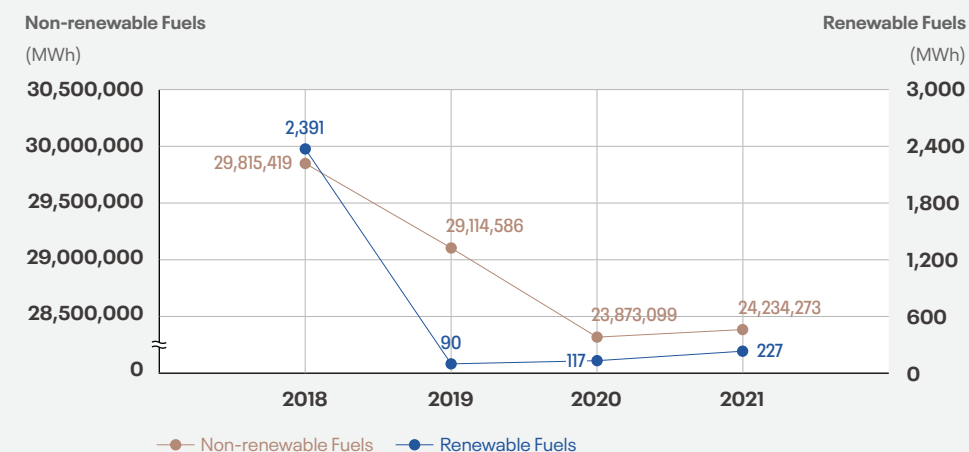
As a benchmark air transportation service provider in Taiwan, CAL is tasked with the critical mission of with supporting border security and strengthening disease prevention tasks for passengers and crew members. CAL complies with related regulations of the Central Epidemic Command Center (CECC) and provides passengers and crew members with suitable protective equipment and takes part in discussions and cooperation on [IATA Guidance for Cabin Operations During and Post Pandemic](#). We process cabin waste in accordance with high standards in domestic and international regulations. CAL also works with suppliers to actively develop in-flight service products that meet disease prevention and environmental protection requirements to protect passengers' health and the environment.

Resource Management

Use of Energy

CAL carried out 59 environmentally friendly energy conservation measures and the fuel management team implemented 12 fuel-saving programs in 2021. The planned carbon reduction target was 48,762 tons. However, the reduced number of flights due to the epidemic resulted in a lower achievement rate for fuel conservation. The park air-conditioning / lighting equipment replacement project was also postponed. The actual carbon reduction in 2021 was 58,464 tons and the achievement rate was 120%. CAL consumed 33,260 thousand kWh of electricity in 2021, which was a 3.66% decrease from 2020 (34,523 thousand kWh). CAL continued to replace existing equipment and lighting equipment, enhanced the energy conservation awareness campaigns in the office, maintained the operation efficiency of the electricity recovery system of the elevators, and increased the efficiency of solar renewable energy equipment during the epidemic. We also obtained 127 renewable energy certificates issued by the Ministry of Economic Affairs in 2021 to maintain a certain level of building energy efficiency while satisfying disease prevention requirements.

Energy Consumption



Contents

Preface

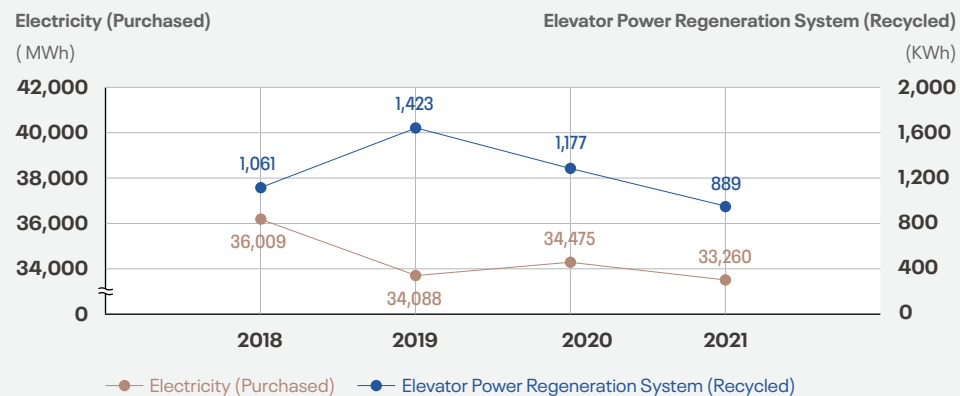
1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix



Note 1: Non-renewable fuels include gasoline, diesel, liquefied petroleum gas (LPG), liquefied natural gas (LNG), and aviation fuel. All CAL aircraft are counted as part of the calculation of aircraft fuel consumption.

Note 2: Renewable fuels include sustainable aviation fuels and solar photovoltaic.

Note 3: The scope of purchased power covers park areas (China Airlines Park, Taipei Branch Office, Songshan Office), maintenance plants (Hangars 2 and 3, Engine Maintenance Plant), and Kaohsiung Office.

Noise Management

CAL takes the following measures to reduce the impact of noise on local communities and front-line employees during takeoff and landing without compromising flight safety:

- All aircrafts in the fleet (A350-900, A330-300, A321neo, 777-300ER, 737-800, 777F, and 747F) have conformed to international noise standards (noise level for Chapters 3 and 4 of ICAO Annex 16); in particular, noise of A350-900 is 16 dB lower than the current standards and 20% less than that of the same model of competitors.
- Implement flight takeoff and landing operations in accordance with the Noise Abatement Procedures announced by each airport.
- Encourage the flight crew to employ the continuous descent approach (CDA) to continue low-noise operations, lower noise level, and reduce fuel consumption.
- Pay noise charges according to regulations of each country's airports on noise prevention.
- Collect international information through international exchange platforms, such as IATA to continue to carry out noise reduction.

Use of Water Resources GRI 303-1

CAL's water resources are supplied by Taiwan Water Corporation or Taipei Water Department based on the region. Both CAL and Engineering & Maintenance Organization (EMO) Parks are located in areas with medium to high water resource risks. We fully incorporated with water conservation label products and rainwater recycling systems into the initial design and construction of CAL Park. The system provides water for watering plants and toilet flushing in the Park and we also added multiple

intermediary water recycling pipelines after the completion of construction, including condensed water from the air-conditioning system and drainage from training swimming pools as we seek to minimize the consumption of water resources. The water consumption in the in the EMO Park mainly occurs in the maintenance process, wastewater processing, and aircraft cleaning operations. The wastewater includes domestic sewage and industrial wastewater. The former is processed by the Taoyuan Airport Sewage Treatment Plant while the latter is processed by the two wastewater treatment plants in the EMO Park due to the nature of the wastewater. The treatment plants process organic and galvanization wastewater (including heavy metals such as chromium and cadmium). They are also regularly inspected to ensure that the effluent meets related regulations of the Environmental Protection Administration. We recycle and reuse the processed organic wastewater for washing cars and watering garden plants. The remaining effluent is discharged into Nankan River. Songshan Park and Taipei Branch Office are located in areas with low water resource risks.

Water Usage Area	Water Shortage Level 1	Water Supply Unit (Source Type)	Wastewater Processing Unit (Level)	Effluent Site	Effluent Standard
CAL Park	Located in Taoyuan City with high water resource risks	Taiwan Water Corporation (fresh water)	Domestic sewage: Taoyuan Airport Sewage Treatment Plant (secondary treatment)	Nankan River (River with Category C terrestrial surface water)	pH: 6 ~ 9 COD: <100 mg / L BOD: <30 mg / L SS: <30 mg / L
EMO Park			Industrial wastewater: CAL's first and second wastewater treatment plants (tertiary treatment)		pH: 6 ~ 9 COD: < 100 mg / L SS: < 30 mg / L Cadmium: < 0.03 mg / L Total chromium: < 2 mg / L
Taipei Branch	Located in Taipei City with low water resource risks	Taipei Water Department (fresh water)	Dihua Sewage Treatment Plant (secondary treatment)	Tamshui River (River with Category D terrestrial surface water)	pH: 6 ~ 9 COD: < 100 mg / L SS: < 30 mg / L NH3: < 10 mg / L
Songshan Office					

Note 1: Source: A study on the adaptation indicators for the high water resource risk area in Taiwan, Water Resources Agency, Ministry of Economic Affairs, 2016.

Note 2: There were no violations of regulations regarding wastewater or sewage in 2021.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

With regard to water resources, the Company's water withdrawal volume in 2021 was 118,422 tons which was a 12% reduction from 2020. In response to disease prevention requirements in 2021, we adjusted facilities in certain areas to ensure cleaning effectiveness and risk management stipulated by government public health policies. However, the Company still actively installs internal water meters and intermediary water recycling pipelines and promotes conservation of water used for watering plants. We implement the [ECO-SHINE and Callington environmentally friendly aircraft cleaning technologies that save water](#) and other measures. We sought to minimize the consumption of water resources in the system while ensuring disease prevention.

(Unit: thousand tons)

Water Usage Area (Source Type)	Water Withdrawal (Note 1)				Water Consumption (Note 2)	Water Discharge (Note 3)	Water Recycling (Note 4)	Recycling Ratio
	2018	2019	2020	2021	2021	2021	2021	2021
CAL Park (tap water)	54.47	57.49	49.1	33.42	22.32	16.75	11.42	29.2%
CAL Park (rainwater)	11.48	15.34	8.05	5.65				
EMO Park (tap water)	75.88	70.25	59.78	65.4	36.17	Domestic: 12.29	NA	-
						Industrial: 16.94	Industrial: 2.81	4.3%
Taipei Branch (tap water)	5.8	5.83	5.41	4.56	2.43	2.14	NA	-
Songshan Office (tap water)	12.07	12.93	12.48	9.39	5.73	3.66	NA	-
Total	159.7	161.83	134.82	118.42	66.65	51.78	14.23	12%

Note 1: Scope covered by water meters: CAL Park, maintenance plants, Songshan Office, and Taipei Branch; rainwater recovery volume retroactively added in 2021.

Note 2: The water consumption volume of CAL Park is calculated based on the water consumption of the equipment.

Note 3: Wastewater treatment for the EMO Park includes industrial wastewater from Taiwan Aircraft Maintenance and Engineering Co., Ltd.

Note 4: Water recycling includes rainwater and intermediate water recovery in the Park and wastewater recycled in the EMO Park.

Pollution Prevention

Air Quality GRI305-7

Among the gases emitted by aircraft engines, nitrogen oxides (NOx) and sulfur oxides (SOx) have a significant impact on the local air quality. Despite the impact of the epidemic in 2020 on the Company's operations (RTK) and emissions performance, CAL continues to reduce the impact on ground air quality during aircraft takeoff / landing mainly through introducing low-pollution new aircraft, encouraging the shutdown of one to two auxiliary power units (APUs) during taxiing, and improving the efficiency of ground power units. CAL uses new aircrafts in its fleet to provide passenger and cargo transportation services. The 14 A350-900 aircrafts have been delivered and have replaced the A340-300 and certain 747-400 aircrafts in flights. We have purchased six 777F cargo aircrafts since 2020, with three aircrafts already been delivered, two aircrafts scheduled for delivery in 2022 and one aircraft scheduled for delivery in 2023. The Board of Directors resolved in the meeting in January 2022 to purchase four 777F cargo aircrafts which will be delivered by 2024. The first A321neo aircraft started operations in 2021 and the remaining 14 aircrafts will be delivered by 2027. Group fleet: Mandarin Airlines has fully updated its fleet and has purchased nine ATR72-600 aircrafts from 2017 to the end of 2020 to replace all ERJ aircrafts. Tigerair Taiwan already has eleven A320 aircrafts and will lease-purchase fifteen additional A320neo aircrafts.

By introducing these next-generation new fleets, CAL improved fuel efficiency and reduced NOx emissions at takeoff and landings.

To reduce air pollution caused by ground operations, CAL has adopted "environmentally friendly paint" to reduce the concentration of volatile organic compounds when aircrafts are painted. The emissions in the painting process are filtered to meet emission standards. The use of incineration facilities has thus been discontinued, which significantly reduces air pollution and fuel use. In addition, maintenance facilities also converted old supply vehicles to electric vehicles to reduce resource recycling rate and resolve the issue of vehicle exhaust.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

SOx and NOx Emissions of CAL Group

Item	Unit	Emissions					
		2018	2019	2020	2021		
Passenger Aircraft	SOx	Emissions	Ton	58.28	58.95	30.41	27.43
		Emission Efficiency	g / RTK	0.0122	0.0122	0.0133	0.0150
	NOx	Emissions	Ton	607.47	614.49	317.03	34.18
		Emission Efficiency	g / RPK	0.0150	0.0149	0.0400	0.0538
Cargo Aircraft	SOx	Emissions	Ton	13.72	13.09	14.58	16.06
		Emission Efficiency	g / RTK	0.0029	0.0031	0.0030	0.0028
	NOx	Emissions	Ton	143.02	136.48	152.04	167.43
		Emission Efficiency	g / RTK	0.0301	0.0321	0.0317	0.0290

Item	Unit	Emissions			Emissions				
		2019	2020	2021	2019	2020	2021		
Passenger Aircraft	SOx	Emissions	Ton	30.59	25.14	16.85	16.19	2.89	0.04
		Emission Efficiency	g / RTK	0.2001	0.5307	0.6549	0.0399	0.0486	0.0838
	NOx	Emissions	Ton	318.88	262.10	175.61	168.72	30.09	0.46
		Emission Efficiency	g / RPK	0.2086	0.5109	0.6802	0.0368	0.0454	0.0784

Note 1: SOx: is calculated based on the methodology of the American Environmental Protection Agency: Total annual emissions = Number of flights x 0.000891, where 0.000891 is the emission factor (Tons / LTO).

Note 2: NOx: is calculated based on the methodology of the American Environmental Protection Agency: Total annual emissions = Number of flights x 0.009288, where 0.009288 is the emission factor (Tons / LTO).

Note 3: LTO: refers to the landing take-off.

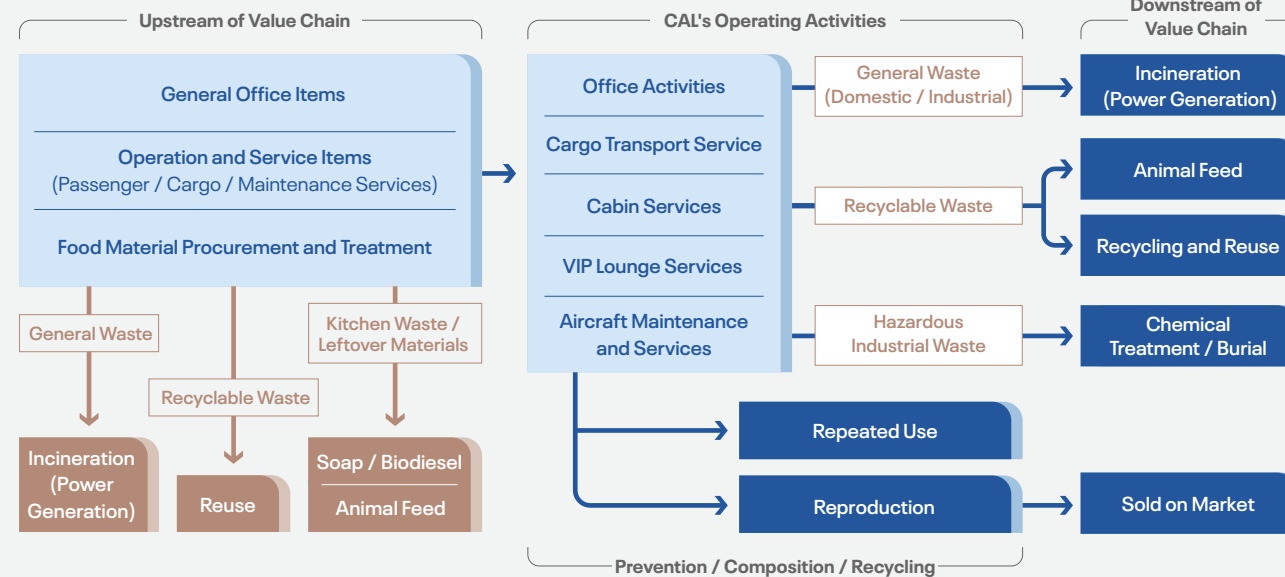
Note 4: Mandarin Airlines and Tigerair Taiwan have no cargo aircrafts.

Note 5: Mandarin Airlines revised the emission data from 2019 to 2020 in accordance with the adjustment of flight information system.

Waste Management GRI306-2

CAL considers the characteristics and output of the waste produced in the operation process, including general domestic waste from office operations, hazardous / general industrial waste in maintenance operations, and recyclable resources and kitchen waste from transportation services (as shown in the figure). The Company implements waste management in accordance with five major principles: refuse, reduce, reuse, recycle, and repair in the implementation of fuel conservation, water conservation, and paperless services. We seek to reduce waste of resources while reducing GHG emissions. We also established short, medium, and long-term management plans for waste derived from different types of operations. CAL's objective is to reduce waste volume, increase the waste recycling rate year after year, and recycle 100% of waste.

Waste Flowchart



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Ground Operation Waste Management Objectives

Objectives	2023	2025	2030
Recycle general recyclable waste	100%		
Reduce general unrecyclable waste output by (compared to 2018)	5%	7%	12%
Increasing industrial waste recycling ratio to	43%	45%	50%
Reducing paper consumption by (compared to 2018)	14%	30%	50%





Cabin Waste Management Objectives

Objectives	2023	2025	2030
Reduce total cabin waste by (compared to 2018)	25% (Note 1)	50%	65%
Reduce use of single-use plastic (SUP) for in-flight services by	50%	90%	100%
Reduce the per capita food waste of in-flight service by (compared to 2020)	5% (Note 2)	10%	25%

Note 1: The scope of the cabin waste reduction objectives consists mainly of cabin waste for flights returning to Taiwan and does not include waste generated during meal preparation.

Note 2: As the meal format has been adjusted due to the pandemic, food waste of 2020 was adopted as the baseline year for the management targets.

Cabin Waste Reduction Objectives

Waste Management Principles	Actions
 Refuse	<ol style="list-style-type: none"> 1. Encourage the selection of products with environmental protection certification (e.g., environmental protection, FSC, energy conservation, and water conservation labels) for procurement applications 2. Work with suppliers to develop and purchase non-single-use plastic materials and environmentally friendly products (e.g., wooden stirrers)
 Reduce	<ol style="list-style-type: none"> 1. Promote the digitalization of all operating procedures to reduce paper consumption 2. Optimize maintenance processes and reduce end waste 3. Plan business and service supplies precisely to reduce consumption; strengthen waste meal management to reduce waste
 Reuse	<ol style="list-style-type: none"> 1. Increase the reuse of usable industrial waste (e.g., waste plastic buckets) 2. Develop and encourage passengers to use products with reusable materials to replace single-use products (e.g., foldable platinum silicone cups) 3. Create a friendly environment for bringing your own trays and encourage employees to reuse trays
 Recycle	<ol style="list-style-type: none"> 1. Support the Environmental Protection Administration's plastic wrap recycling platform to enhance the reuse of plastic wraps 2. Select suitable in-flight supplies / replacements to increase productivity and provide sales services (e.g., meal carts)
 Repair	<p>Repair passenger and cargo transport equipment (e.g., containers / pallet nets etc.) for reuse</p>

Our business revenue was affected by the pandemic in 2021 and the overall waste output decreased significantly by 33% compared to 2020 while the recycling ratio increased slightly by 3%. The Company strengthened the collection of related data (onsite weighing or reports on statistics), compliance audits, and supply chain management during the epidemic to ensure adequate waste disposal. We also developed strategies to reduce plastic and surplus food through the Cabin Waste Task Force and prepare for the future recovery of the aviation industry.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Waste Information

(Unit: Tons)

Item	Service Segment			Disposal Method
	Waste Produced			
	2019	2020	2021	
General Domestic Waste	126	116	94	Incineration for power generation
	966	425	410	Delivered to the airport incineration plant in accordance with regulations (without power generation; recommended the installation of electricity generation facilities)
Recycling	779	581	509	Resource recycling
Kitchen Waste / Waste Materials	658	283	84	Compost / hog raising
	2,342	735	296	Incineration for power generation in accordance with quarantine requirements
Recycling of Hazardous Industrial Waste	18	13	12	Heat treatment (e.g., sludge from electroplating)
	1	1	1	Appoint a qualified contractor for professional disposal in accordance with regulations (e.g., batteries that contain cadmium)
Recycling of Non-hazardous Industrial Waste	113	100	100	Recycling and reuse (e.g., waste lubricants)
	120	85	64	Processed in accordance with regulations (e.g., waste paint)
Total	5,123	2,339	1,570	-

Note 1: Third-party contractors were appointed for removing and offsite processing of waste for disposal. CAL implements inspections in accordance with the contract to ensure compliance with regulations.

Note 2: Scope of statistics from service segments: EMO, CAL Park, Kaohsiung Office, VIP rooms of four stations (Taoyuan, Songshan, Kaohsiung and Tainan), and in-flight services in Taoyuan International Airport. Cargo services included starting from 2020.

Note 3: Revised the items and quantities of waste delivered to the airport incineration plant in 2019 to 2020 in accordance with regulations.



Key Achievement

Food Waste Management and Packaging Reduction

CAL has formed the "Cabin Waste Task Force" in the third quarter of 2019, inviting services, supplies, planning, and quality assurance units, as well as supplier partners in catering and cabin cleaning, to actively respond to issues of concern to the international community and establish a regular communication platform. We adopted green design, waste reduction, and passenger communication as our three main operation guidelines and actively reduces the external environmental cost from inflight services and medium to long-term compliance risks.

Management of Cabin Food Waste

CAL actively responds to international food loss and waste issues, and has worked with the Group's supply chain for years to reduce food loss during preparation/processing and monitor the quantity of meals provided on flights to destinations across the world. The measures include:

1. Food material management at the source: We strictly control the operating procedures from recipe design, purchase and delivery, ingredient control, and low-temperature storage to loading to reduce food loss and waste. We also design recipes with high interoperability between the preferences of passengers in different regions and strictly implement management from procurement, inventory, and low-temperature storage to loading onto the aircraft to reduce food loss.
2. Precision meal ordering for reducing food waste: Business Class passengers can pre-select their main course on the website 14 days prior to departure. The Company then monitors the loading quantity based on the Smart Loading Ratio 24 hours prior to departure. The meal control team works closely with the flight catering service to perform at least 4 meal checks to accurately control the number of meals ordered to reduce food waste.
3. The food waste per capita for Taipei Airport was reduced by 30.6% in 2021 compared to 2020 and the amount of food waste was reduced by 92.5%.

Recycling and Reuse of Kitchen Waste and Waste Food Oil

100% of the waste oil produced in the preparation of meals by China Pacific Catering Services of CAL Group is recycled by qualified oil recycling companies for processing and conversion into biofuel or other products that can be recycled for sustainable reuse. The recycling volume from 2019 to 2021 was as follows:

China Pacific Catering Services Food Oil Statistics

(Unit: Tons)

Year	2019	2020	2021
Services Food Oil (Recycling Ratio)	80.4 (100%)	25.57 (100%)	7.53 (100%)



Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

In-flight Environmental Services

CAL is keenly aware of the international support for environmentally friendly single-use plastics and packaging reduction. We work with our Group / supply chain partners to actively increase environmental benefits based on the principles of design at source, usage monitoring, customer communication, and consumption improvements. Important actions are as follows:

- In-flight service supplies are prepared based on 4 basic principles (i.e., "inventory management", "operational impact", "regulatory trends", "enhancement of corporate image") + 3 innovations ("compliance with sustainability", "biocertification" and "eco design"). We develop new environmentally friendly products and transition toward a circular economy model. We also implement a plan for prioritizing repeated use, which is supported by recycling to increase the reuse of packaging materials.
- In order to create an environmentally friendly and friendly service environment in the cabin, China Airlines has not only set a goal of reducing the amount of single-use plastic (SUP), but will also strengthen customer communication and promote customer participation. Such as earphones, green cups and tableware, reduce the use of disposable items on the plane, echoing the international trend of plastic restrictions.

Environmental Expenditure

CAL actively implements green procurement, invests resources every year, purchases environment-friendly equipment, promotes green maintenance and operation projects, and pays for waste cleaning and noise prevention expenses. The pandemic continued to reduce operations and green procurement of products in Category 1, 2, and 3 totaled 29 products. The amount was a decrease of TWD 3,744,000 compared to 2020.

CAL Investment in Green Facilities and Green Procurement

(Unit: TWD thousand)

Item	2018	2019	2020	2021
Environmental Protection Equipment and Maintenance Projects (Note 1)	23,106	22,805	21,774	27,922
Green Procurements (Note 2)	15,760	19,258	10,199	6,455
Waste Disposal	4,536	4,062	3,854	4,107
Noise Prevention	190,357	189,351	136,812	136,136
Air Pollution Control	1,007	753	819	589
Total Investment Amount	234,766	236,229	173,458	175,209

Note 1: Green facilities include the depreciation of pollution prevention equipment, operational maintenance, hardware investments, environmental testing, and related projects.

Note 2: Green procurement includes Category I, II, and III products prescribed in the Regulations for Priority Procurement of Eco-Products (dated January 15, 2001).

- 100% of metal in-flight service supplies and equipment are recycled by qualified companies.
- Use recycled materials for 50% of the packaging in 2023; use recycled materials for 80% of the packaging in 2025; use recycled materials for 100% of the packaging in 2030.
- Enhance communication with customers and promote customer participation such as using in-flight magazines and videos to share environmental protection information and communicate environmental protection ideas. Encourage passengers to bring their own personal items such as headphones and environmentally friendly cups and utensils to reduce the use of disposable items on the aircraft.

Follow-up Operation Plans

The Waste Task Force shall continue to promote onsite waste quantity and composition inventory. It shall also continue to communicate with government authorities, international organizations, and suppliers based on the principles of food safety, convenience, exceptional services, and cost for seeking superior alternative products / materials and maximizing the resource recycling and reuse of waste.

Task 2 — Consolidating Climate Risk Management and Carbon Reduction

GRI 302-1, 302-2, 302-4, 302-5, 305-1, 305-2, 305-3, 305-5

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix




CAL introduced a complete ISO 14064-1 greenhouse gas management mechanism, and established a Carbon Management Task Force under the framework of the Environmental Committee to comprehensively manage the carbon risk issues of corporate operations and manage compliance with international carbon control schemes based on the structure of carbon rights and emissions management.

In order to achieve the carbon reduction target in the first stage in the aviation industry — improving fuel efficiency by 1.5% per year by 2020 — CAL has continued to strengthen its fuel efficiency measures and formulated four major fuel-saving strategies, namely, "promoting green-energy flights," "improving ground service control," "enhancing regular repair and maintenance," and "strengthening weight reduction of fuselages," and other specific implementation measures. However, due to the severe impact of the epidemic on flight plans and dispatches in 2021, although total aviation fuel consumption increased by 1.52% from 2020 (to be confirmed), the total number of flights was reduced by 3.4% and the performance of revenue ton kilometer (RTK) increased by 7.5%. The overall fuel efficiency was 0.2442 tons / 1,000 RTK, which met the 2021 target (0.2547 tons / 1,000 RTK). CAL has achieved the short-term carbon reduction target for ground operations (39% reduction in 2021 compared to 2009).

In 2021, CAL followed international trends and set a target for attaining net zero emissions by 2050. We continue to enhance flight and ground service carbon reduction. The fuel saving measures, the Group's GHG emissions, and its performance in the use of aviation fuel in 2021 are shown in the table below:

GHG Emissions of CAL, Mandarin Airlines, and Tigerair Taiwan

(Unit: Tons CO₂e)

Company	GHG Scope	Item	2018	2019	2020	2021
	Category 1	Flight Operations	7,229,903	7,059,083	5,787,751	5,875,531
		Ground Operations in Taiwan	3,511	4,981	3,051	2,897
		Ground Operations in Outstations (Note)	1,379	1,395	1,012	748
	Category 2	Ground Operations	19,949	18,169	53,624	16,697
	Categories 3-6 (Note)	Ground Operations	1,644,656	1,607,690	3,109,822	3,174,662
	Category 1	Flight Operations	242,325	237,701	106,600	63,987
	Category 2	Ground Operations	-	901	904	839
	Category 1	Flight Operations	336,684	362,794	53,514	988
	Category 2	Ground Operations	-	106	87	108

Note 1: The statistics contain 100% of the aviation fuels used by CAL, Mandarin Airlines, and Tigerair Taiwan.

Note 2: GHG emissions assessment agencies: BSI (2011-2013, 2015- 2016) and DNV GL (2014, 2017-2021).

Note 3: CAL calculated the emissions from the products purchased, capital goods, fuel- and energy-related activities not included in Scope 1 or 2, upstream and downstream transportation and distribution, waste treatment, employee commuting, upstream and downstream leased assets, and investments based on 15 classification requirements of the GHG Protocol Scope 3 Guidance. The emissions totaling 3,109,822 tons of CO₂e was calculated in 2020 based on ISO 14064-1:2018, which was expanded to include Categories 3 to 6 (previously included in Scope 3). Only the emissions of ground operations in CAL outstations were not included in the 3rd-party verification. All other data in Categories 3 to 6 have passed third-party verification.



Key Achievement

CAL Continues to Introduce A321neo Next-Generation Fuel-Efficient Aircrafts and Use SAF for Aircraft Delivery Flights

CAL actively improves its fleet structure by introducing the next-generation energy-efficient aircraft A321neo starting from 2021. This aircraft can reduce fuel consumption by 15-20%, noise footprint by 75%, and NOx emissions by 50% compared to the narrow-body aircrafts from the previous generation. CAL has also used sustainable aviation fuel for the delivery flights of the new aircrafts as it did for A350 to reduce carbon consumption by 8% compared to conventional fuel. CAL actively promotes the goal of "net zero carbon emissions" by 2050 through actual actions for fuel conservation and carbon reduction.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix



Key Achievement

CAL Organized SAF Expert Seminar

To ensure that Taiwan's aviation industry meets international sustainable development trends, formulate Taiwan's strategy for sustainable aviation fuel, and increase the energy supply security and competitiveness in the international market and sustainability of Taiwan's aviation industry in face of future low-carbon regulations, CAL developed its SAF development statement in 2021 based on its experience in using SAF for A350 and A321neo as well as international SAF policies. CAL also convened the "Sustainable Aviation Fuel (SAF) Expert Seminar" on February 14, 2022, inviting nine experts from the Association of Atmosphere Protection in Taiwan, ITRI, National Taiwan University, National Tsing Hua University, Taiwan Institute for Sustainable Energy to exchange ideas on the SAF statement and the strategy for connecting the industry with government institutions.

Aviation Fuel Efficiency GRI 302-3, 305-4

CAL has commenced aircraft fuel saving and carbon reduction operations since 2001. We established a cross-unit fuel consumption management team in 2007 and the Senior Vice President personally oversees aircraft fuel conservation operations in operation planning, flight controls, aircraft maintenance, procedure management, and aircraft weight reduction. We manage various fuel conservation performance indicators including using only a single engine for taxiing, precision calculation of the APU activation time, use of GPU to reduce APU fuel consumption, precision refueling, precision calculation of the optimal center of gravity of the aircraft, increased precision in cargo weight measurement, and selection of the optimal backup airports and routes for landing. We have reduced carbon emissions with the hard work of all employees. According to the 12 fuel conservation performance indicators in 2021, we reduced fuel consumption by 23,035,997 liters which reduced 58,306 tons CO₂e emissions.

Item	2021							2020				2019			
	2009	2018	2019	2020	2021	2021 VS. 2020	2021 VS. 2009	2018	2019	2020	2021	2018	2019	2020	2021
Fuel Consumption (Ton / GJ)	1,927,803 / 830.17	2,284,957 / 983.97	2,230,971 / 960.72	1,829,328 / 787.76	1,857,073 / 799.71	27,745 / 11.95	-70,730 / -30.46	80,667 / 34.74	98,910 / 42.59	35,395 / 15.24	26,614 / 11.46	106,406 / 45.82	114,658 / 49.37	21,178 / 9.12	308 / 0.13
CO₂ Emissions (Ton CO ₂ e)	6,099,820	7,229,839	7,059,083	5,787,751	5,875,530	87,779	-224,290	254,908	312,556	111,849	84,101	336,700	289,227	53,422	973
Transport Volume (Thousand RTK)	7,721,089	9,544,260	9,072,762	7,075,331	7,605,201	529,870	-115,888	149,542	152,905	47,373	25,723	373,185	405,262	59,347	521
Fuel Efficiency (Fuel / Thousand RTK)	0.2497	0.2394	0.2459	0.2586	0.2442	-0.0144	-0.0055	0.5394	0.6469	0.7472	1.0346	0.2851	0.2829	0.3569	0.5910
Carbon Emission Intensity (Ton CO ₂ e / Thousand RTK)	0.7900	0.7575	0.7781	0.8180	0.7726	-0.0454	-0.0174	1.7046	2.0441	2.3610	3.2694	0.9022	0.7137	0.9002	1.8676

Note 1: The lower the fuel efficiency and the carbon emission intensity, the better is the performance.

Note 2: Carbon emission intensity (ton CO₂e / thousand RTK) = GHG emissions / Total RTK.

Note 3: No alternative fuel or sustainable aviation fuel were used in 2020.

Contents

Preface

1 Sustainability Management

2 Value Creation

2-1 Trust

2-2 Human Resources

2-3 Cooperation

2-4 Environment

2-5 Society

3 Corporate Governance

ESG Data and Appendix

Task 3 — Building Capacity for Value Chain Environmental Management

In addition to strengthening its sustainable environmental management momentum, CAL also actively enhanced the sustainable value of the overall industrial value chain. CAL launched environmental management of the value chain in 2018, inviting the Group's partners to initiate the Eco Seed Development Plan, and using environmental / energy / carbon management workshops and environmental risk surveys to promote an understanding of the concepts and benefits that will accrue from environmental / energy / carbon management. In 2020, CAL started to ask interviewed value chain partners to organize quantified energy and resource information and records (tap water / wastewater and sewage / recycled water / waste / green procurement) and convene communication meetings each year. We invited contact persons from the value chain partners and their first-level supervisors to attend the meetings at which the results of risk survey and analysis were summarized and industry's excellent case studies were also shared to improve the environmental management quality of the supply chain, and implement the "lifecycle concept" management in the ISO 14001:2015 Environmental Management System. Starting from 2021, CAL also requested value chain partners to set up the Company's environmental policy and energy management targets, and continue to intensify environmental management and internal and external communication. CAL also encouraged them to set up environmental sustainability pages to disclose their environmental policies, annual operational targets, and performance.



Key Achievement

Leading Partners in the Value Chain to Continue to Improve Environmental and Energy Management Performance

- **Object:** 11 key value chain companies
- **Operational Highlights:** By surveying
 1. Assessment of the Group's operational and environmental risks
 2. Help partners of the Group manage key environmental opportunities / risks
 3. Continue to increase the environmental and energy management performance of partners of the Group
 4. Conduct communication meetings to consolidate the awareness of energy conservation and environmental protection in the value chain
- **Implementation Results:**

All 11 value chain companies have used employee email, intranet, and bulletin boards to increase employees' awareness of the "Environment and Energy Policy". Certain partners have also used meetings with contractors, suppliers, and third-party service providers to communicate the "Environment and Energy Policy" or set up environmental sustainability webpages on their official websites and disclosed their environmental, energy, and resource management targets and performance. They considered environmental protection and energy conservation for new investment or equipment procurement. They assigned dedicated units to take charge of evaluating compliance obligations for the key environmental issues with direct impact on the company. The total Category 1 and Category 2 emissions of the 11 companies totaled 106,362 tons CO₂e.
- **Follow-ups:**

We shall continue to expand CAL's environment and energy management experience and formulate and promote environment and energy management mechanisms that meet requirements for the Group's operation resources and sustainability targets while ensuring cost-effectiveness. We shall also strengthen environment and energy information disclosures of each company.

Task 4 — Strengthening Awareness and Brand Image of Corporate Environmental Protection

CAL organizes the environmental training campaign every year to develop employees' awareness of environmental protection. Training programs are organized online or offline to cultivate the attitude and actions of protecting the planet. To implement external communication, CAL communicates the corporate concept and performance of environmental protection with stakeholders through the official website, social media, and in-flight magazines in hopes of creating and spreading the awareness of green consumption.

Contents

Preface


1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Item	Operation Description	2021 Achievements
Shape a Culture of Environmental Protection	Environmental Training for All Employees Improve employees' identification and awareness of environmental sustainability and help develop good conduct and business habits	<ul style="list-style-type: none"> • Environmental education <ol style="list-style-type: none"> 1. CAL communicated with new employees regarding the corporate policies and approaches to environmental protection and energy conservation in the course "CAL and I". The achievement rate reached 100%. 2. CAL used the mandatory course "Environmental Management e-Learning for All Employees" to ensure that all employees fully understand the Company's environmental and energy policies and the management system. In 2021, we completed training for 5,296 ground service personnel and we will continue to provide training for cabin crew and employees across the world in 2022. • Knowledge-based education <ol style="list-style-type: none"> 1. Environmental knowledge: CAL published 18 articles and reports on environmental sustainability through internal communication platforms, such as employees' email, China Airlines newsletter, and the startup screen, in 2021. 2. Environmental protection contests and environmental protection satisfaction survey for all employees: The "Employee Environmental Knowledge Challenge" quiz, "Unlock Environmental Knowledge on e-Learning" event, and annual satisfaction surveys were attended by 2,779 employees and the overall satisfaction rate was 93.6%. 3. Environmental protection lectures: One environmental lecture was held, focusing on environmental issues related to marine ecological conservation, to raise the employees' awareness of environmental protection; 207 participants attended.  <p>CAL invited the researcher Ray Chin, a renowned ecological photographer and ecological educator, to share his ideas and experience in marine ecological conservation based on the theme of "Search for the Immense Deep Blue"</p>
	Professional Environmental Training Organize training on environmental and energy management for the related personnel of the Company and affiliates and appoint trainees to participate in external training and seminars as needed	Organized 9 professional training sessions on "environmental energy management systems", "GHG inventory management", TCFD climate-related financial disclosures for climate risks", and the Group's "Environmental Management Meeting" for 285 professional attendees.
Build an Image of Environmental Protection	Promote Awareness of Green Aviation Promote environmentally friendly awareness and consumer behavior	<ul style="list-style-type: none"> • Continued the practice of closing windows during summer to lower the temperature of the cabin and thus reduce the cost of the use of the auxiliary power unit (APU) and airport energy use • Selected 12 environment and ecology-themed videos to play during flights • Published 4 environmental protection articles and reports via social media which reached 196,294 viewers • Added the warning of an embargo on transport of endangered species on the Company website • Continued to publish CAL's environmental practices and electronic and mobile approaches to carbon reduction for in-flight magazines • Marked the Taipei-Kinmen Carbon Label on the website of Mandarin Airlines, supplies, check-in counter, boarding passes, inflight magazines

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Item		Operation Description	2021 Achievements
Build an Image of Environmental Protection	Promote Awareness of Green Aviation	Promote green consumption	<ul style="list-style-type: none"> • Incorporated environment-friendly products and added the "Sustainability Logo" to the sales catalog of duty-free goods delivered home • Updated and shared the carbon footprint of routes • Enhanced the promotion of the voluntary ECO Travel Carbon Offsetting Program to passengers; Mandarin Airlines and Tigerair Taiwan provided ECO Travel service and disclosed information on the official website • Mandarin Airlines and Tigerair Taiwan set up the Environmental Sustainability Section on the official website to publish the "Environment and Energy Policy Statement" and the results of "Carbon Labeling", and "Carbon Reduction Labeling"
		Optimized service processes and reduce waste and waste processing costs	<ul style="list-style-type: none"> • Used 100% FSC paper for printing boarding passes • Adopted local ingredients for in-flight meals and Group catering and put a ban on food ingredients from endangered species • Implemented waste management • Promoted complete digitalization of menus • Incorporated the concept of environmental protection into design of in-flight meals and supplies • Continued the digitalization of in-flight magazines and weight and quantity reduction of in-flight service supplies to enhance weight reduction and fuel-saving benefits



Key Achievement

Mandarin Airlines Reduced Carbon Emissions by 30% and Received the Excellence Award for Low-Carbon Products from the Environmental Protection Administration, Executive Yuan

Mandarin Airlines of CAL Group was the first airline in the world to be awarded Carbon Footprint Reduction Label. It received the first EPA Carbon Label from the EPA and passed ISO 14067 International Carbon Footprint certification in 2017. The continuous implementation of carbon reduction operations and increased operating efficiency has significantly reduced the carbon footprint of Mandarin Airlines by 30%, which ensured its qualification for the basic requirement of the EPA for at least 3% reduction in emissions within three years. It became the first airline company in Taiwan to receive both the Carbon Label and the Carbon Footprint Reduction Label Certificate from the EPA in 2020. Mandarin Airlines also participated in the "Environmental Protection Point Collection (Green Point) event" of the EPA in 2019 and became the first and only domestic airline company to offer the "Green Point for offsetting ticket prices". It encouraged passengers to support domestic eco-friendly and low-carbon travel while enjoying actual rebates for green flight ticket discounts. In 2021, Mandarin Airlines received high praise from the EPA's Low-Carbon Review Team and received an Excellence Award for Low-Carbon Products from the EPA as recognition for its support of national carbon reduction policies.

Refer to [Mandarin Airlines' Official Website — Environmental Protection](#)



Key Achievement

Expanding the Green Point Discount for Ticket Fare Program

Since 2019, CAL has integrated the official website, the ticketing system, travel reminders, and a diversified electronic-friendly service platform to strongly encourage passengers to participate in the voluntary [ECO Travel carbon offsetting program](#). In 2019, CAL added carbon offsetting links to the employee preferential ticket system and the business trip dispatching system to invite employees to jointly support carbon-offsetting actions. As of the end of December 2021, the amount of offset reached 299.77 metric tons, the best in the industry in Taiwan.

To continue to help domestic consumers learn about low-carbon travel and take action, CAL invited Mandarin Airlines and Tigerair Taiwan to join the "ECO Travel Carbon Offsetting Program" in 2021. It became the only domestic-route and low-cost airline company in Taiwan to support the carbon offsetting program. It provides consumers with the opportunity to participate in supporting international sustainable development initiatives and contribute to sustainability of the Earth's environment.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Future Plans

1 Advance Operational Effectiveness of Management Systems

1. Advance the operation of ISO 14001 and ISO 50001 management systems and ISO 14064-1: 2018 MRV operations
2. Continue to improve environmental and energy target management and operation performance
3. Promote informatization of management systems
4. Participate in discussion on environmental management system planning in the industry

2 Expand the Scope of Environmental, Energy and Greenhouse Gas Management

1. Enhance the scope and intensity of climate change and environmental energy risk management of the value chain
2. Implement environmental risk assessment of outstations and suppliers
3. Assist the Group's enterprises to improve their carbon management

3 Comply with the Carbon Management Scheme for International Aviation

1. Continue to participate in the IATA and Taiwanese government's engagement for strategic planning of CORSIA operations
2. Follow CORSIA monitoring plan, process data verification, report to competent authorities, and improve data quality management
3. Optimize carbon emission management, reduction, offsetting, and carbon right management
4. Conduct carbon offset management in accordance with ICAO regulations

4 Consolidating the Financial Quantification Mechanism for Corporate Climate and Environmental Risks

1. Continue to strengthen climate and environmental governance of the senior management such as the Board of Directors
2. Build the momentum of financial disclosures relating to climate and environmental risks
3. Enhance the implementation knowledge of all units on climate issue management

5 Continue to Refine Carbon Reduction Targets

1. Implement the net zero emissions target by 2050 and continue to manage and improve air and ground carbon reduction targets
2. Strengthen energy-saving and carbon reduction measures, expand the use of renewable energy, continue to reduce the carbon footprint of operations, and improve ecological benefits
3. Participate in the preliminary research of SBT methodology for aviation and cooperation in the international aviation industry
4. Expand the use of renewable energy and promote afforestation projects

6 Continue to Improve the Utilization Efficiency of Environmental Resources

1. Improve water resources and waste management and expand and improve management targets
2. Continue to implement and improve environmental protection and energy-saving measures and increase resource utilization efficiency
3. Work with suppliers of in-flight service supplies to increase the ratio of products with environmental protection certification and continue to develop environmentally friendly products

7 Advance Sustainable Aviation Fuel (SAF) Application Strategy

1. Continue to keep abreast of developing trends in sustainable fuels
2. Continue to promote SAF trial operations
3. Encourage the implementation of domestic SAF policies and develop Taiwan's industrial and governmental SAF strategies

8 Create an Environmental Protection Culture Inside and Outside the Company

1. Continue to support environmental sustainability initiatives at home and abroad
2. Create diversified promotion channels and strengthen innovation and cooperation inside and outside the Company

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

2-5 Society

★ HIGHLIGHTS



2 million in donations

CAL organized the first mask charity sale event in 2021 and encouraged all employees to make donations by purchasing masks. A total of 1,081 employees participated in the event and donated TWD2,000,000 to disadvantaged groups such as the White Kite Children's Home, Adolescents' Home Taoyuan, and Muhsiang Sweet Home provide support during the pandemic.



75 million doses of COVID-19 vaccines transported

The pandemic continued to pose grave threats in 2021 and CAL completed the transportation of masks, gloves, negative pressure isolation rooms, and other medical supplies. It transported more than 350 tons of COVID-19 vaccines which totaled more than 75 million doses.



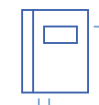
Over 800 students

Since 2014, volunteers of CAL's Love All Around Team have visited 15 counties and cities, 27 townships, and 56 junior high schools, elementary schools, and social welfare organizations in Taiwan. They provided care for 3,447 students. In 2021, CAL volunteers complied with pandemic prevention regulations and voluntarily visited remote rural areas to teach students about aviation. The activities provided positive effects on more than 800 students and connected education with the ecology to create a positive cycle for the children.



Over 18.25 million in charity contributions

Invested TWD 18,252,660 in charity activities throughout 2021.



45,000 students

Sponsored book programs for 102 schools throughout Taiwan to help approximately 45,000 students.



360 senior citizens

Provided care for 360 disadvantaged senior citizens at three events throughout 2021.



6th time Reader's Digest Trusted Brand

Tigerair Taiwan, China Airlines Group's subsidiary, won a Platinum Award in the low-cost carrier category from the Reader's Digest Trusted Brand for six consecutive years.

Management Approach GRI 103-1, 103-2, 103-3

📍 Topic of Concern

- Social Feedback and Engagement

📍 Importance of Material Issues

No support from the society, no CAL. What makes CAL successful is the support of the society. Upholding the core philosophy of "taking from society and giving back to society," CAL continues to contribute to society in the hope of creating love while fulfilling its corporate responsibility in Taiwan.

📍 Commitment and Long-term Goals

• Commitment

CAL continues to fulfill our responsibility as a corporate citizen by investing resources in social welfare to mitigate social issues and improve society.

• Long-term Goals



- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

2023

1. Organize at least one education charity event in a remote rural area
2. Organize at least one charity event in collaboration with a local Taiwanese brand

2025

1. Developing opportunities for students to receive international education
2. Promoting economic growth and employment assistance in underdeveloped areas / developing countries and improving social well-being

2030

1. Improving the quality of education in underdeveloped areas / developing countries
2. Enhancing the benefits of sponsorships regarding improving society

Unit in Charge

Corporate Sustainability Committee — Society Task Force

Management Mechanisms

- The meeting of Corporate Sustainability Committee, at least twice a year
- The Society Task Force reports to Corporate Sustainability Committee, every quarter

Grievance Mechanism

- **Investor Relations and Media Contacts** — Investors Service Website
- **Charitable Activities: Corporate Communications Office** — E-mail: tpepp@china-airlines.com



Stakeholder
Contact



Investors Service
Website

Objectives and Plans

Direction	KPI	2021			2022 Objectives
		Objectives	Performance	Achievement (Note 4)	
Enhance the overall quality of national education	Organizing long-term education charity projects	Organizing at least one educational project related to the aviation industry	Organize 2 aviation knowledge sharing events and produce online volunteer education videos (Note 1)	100%	Organize at least one education charity event in a remote rural area
Raise the Taiwan's visibility in the world	Increase the number of sponsoring international activities	Participate in at least one charity event to enhance Taiwan's international visibility	Complete the transportation of the first negative pressure isolation room and COVID-19 vaccines to Taiwan (Note 2)	100%	Organize at least one charity event in collaboration with a local Taiwanese brand
Empower the disadvantaged to gain equal social opportunities	Increased level of sponsorship in charity events	Organizing at least one long-term charity project	Organize 3 long-term charity projects and 1 charity sale event (Note 3)	100%	

Note 1: The Love All Around Team visited two schools in Dayuan District, Taoyuan City in 2021 to teach students about aviation. In response to the uncertainties of the pandemic, they produced online volunteer education videos which were officially launched in 2022 to enrich the education and experience of children during the pandemic.

Note 2: Completed the transportation of the first negative pressure isolation room made in Japan to Taiwan and transported COVID-19 vaccines on multiple flights totaling 70 million doses.

Note 3: In 2021, CAL continued to participate in the events organized by the Huashan Social Welfare Foundation for the three traditional festivals and organized a charity sales and donation event.

Note 4: Achievement refers to the performance fulfillment percentage.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

2-5-1 Social Sustainability Strategy

The world continued to be plagued by the COVID-19 pandemic in 2021. CAL cooperated with several pandemic prevention regulations of the government and reduced the number of events that involve crowds of people to reduce contact risks. However, CAL continued to support the three major sustainable development strategies of "Enhancing the Internationalization of Local Education", "Increasing the International Visibility of Local Brands", and "Empowering the Disadvantaged to Gain Equal Social Opportunities", and continued actions to support the United Nations SDG3, SDG4, and SDG8 goals. We organized charity events from disadvantaged groups in remote rural areas, aviation knowledge education, and transportation of medical supplies. We also donated supplies to medical and police personnel on the front line to thank them for their steadfast commitment to the lines of defense in pandemic prevention and created a positive cycle in the society.

CAL Social Sustainability Strategy



Education

CAL Group is committed to long-term investments for promoting growth of local education in Taiwan. It uses its unique aviation resources and adopts an education through fun approach to motivate children to learn and ensure substantive improvements in children's education. In addition, CAL also allows colleges and universities to apply for company visits. CAL tells students about the operations of the aviation industry and broadens young children's perspectives for future employment. We have also actively engaged in industry-academia partnerships with universities in Taiwan since 2013 to provide opportunities for acquiring professional knowledge and technical skills to attain the ultimate goals for talent cultivation. In addition, CAL encourages employees to develop environmental protection values and perspectives to promote sustainable development in the society.

Company Visits

CAL hosts visits by colleges each year on at CAL Park and assigns dedicated personnel to speak on corporate culture, cabin crew/pilot recruitment procedures, training courses, and equipment to help students learn about careers in the aviation industry. Due to the impact of the pandemic in 2021, only 1 of the 10 scheduled visits by colleges was organized and the activity benefited 30 students.

2-5-2 Enhancing the Internationalization of Local Education

Theme	Item	2021 Performance	
		Number of Participants / Beneficiaries	Amount Invested (TWD)
Education	Educational exchange activity, company visits, volunteer teaching program, knowledge-sharing platform at elementary schools, flight camp, flight simulation camp, cabin crew camp	44,951	315,497
	Coastal cleanup	761	3,712
Environmental Sustainability	Corporate animal adoption plan	40	15,360



Group Photo of College Students after Visiting CAL

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

Volunteer Teaching

"CAL Volunteers Club" was established in 2011. The members include pilots, cabin crew, and employees in operations and maintenance units. The Club organizes regular courses in schools near CAL locations each year. Members share their work experience to encourage children to develop an international perspective and the habit of learning and increase their opportunities for diverse development. Before the pandemic worsened in 2021, the Club organized 1 lecture in schools such as Xihai Elementary School and Zhuwei Elementary School. In total, there were 3 participating volunteers and 3 hours of service, benefiting 73 students. As the results of this wave of the pandemic remain unpredictable, we plan to produce an online video of lecture by volunteers this year, which will be officially launched in 2022. The video will be provided to more local elementary schools in Taoyuan or those in remote areas to enrich the children's learning experience during the pandemic.



Volunteers Club Provided Aviation Courses for Enthusiastic Children



Cabin Manager Talks about Aviation in the Volunteer Lecture Video

Knowledge-Sharing Platform at Elementary Schools

Since 2014, CAL has co-sponsored the Knowledge-sharing Platform Charity Project in partnership with the Global Views Educational Foundation. By giving complimentary Global Kids Junior Monthly and Global Kids Monthly subscriptions to elementary school students in Taoyuan City, Taitung County, Nantou County, and Hualien County, CAL helps develop children's habits for reading and learning, and contributes to cultural education with real actions. In 2021, 102 schools and about 44,878 students benefited.

Note: Calculation of beneficiary students = Average students per elementary school from Statistic of Ministry of Education (Taiwan) * Schools donated by CAL.



Reading Records of Long An Elementary School, Luzhu District, Taoyuan City
(Source: Global Views Educational Foundation)



Reading Records of Shin Juang Primary School, Luzhu District, Taoyuan City
(Source: Global Views Educational Foundation)

Flight Camp

Mandarin Airlines and Apex Flight Academy have jointly organized the "Mandarin Airlines Flight Camp" for 5 years to help young students in Taiwan start a career in aviation.



The "Mandarin Airlines Flight Camp" is Very Popular Among Young Aviation Enthusiasts



A Pilot of Mandarin Airlines Explains the Principles of Aviation to Students in the Aircraft

Flight Simulation Camp

Mandarin Airlines launched the Flight Simulation Camp with one-on-one instructions provided by professional pilots for participants to operate in the simulator. The realistic flight courses help participants experience real flight and are both educational and fun.



The "Flight Simulation Camp" Helps Young Aviation Enthusiasts Make Their Dreams Come True



Dashing and Professional Pilots Introduce Flight Principles and Share Their Experience

Cabin Crew Camp

Mandarin Airlines organized the Cabin Crew Camp event at Taichung Airport for young people in Central Taiwan to experience work as cabin crew without having to travel long distances. The activities in the Camp includes an introduction to the work of the cabin crew and a full experience from putting on makeup and tying the hair to putting on uniforms. The Camp also used a real ERJ-190 aircraft to show participants the uniqueness of cabin crew services.



Mandarin Airlines Organized the Cabin Crew Camp in Taichung Airport



Mandarin Airlines Cabin Crew Camp

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Encourage People to Support the Government in Disease Prevention Tasks

During the pandemic, Mandarin Airlines helped Magong City Government of Penghu film an epidemic prevention videos, which was published on the Magong City Government page to enhance Mandarin Airlines' image for dedication and safe travel. It also encouraged people to adopt epidemic prevention measures and take flights without worries.



Mandarin Airlines Encourages People to Cooperate with the Government's Pandemic Prevention Requirements, Travel Safely, and Live Normal Lives

Promote Domestic Travel with Sound Pandemic Prevention

Mandarin Airlines and Kinmen County Government jointly organized the "Kinmen Tour for 100 Cabin Crew" so that cabin crews can use their free time during the pandemic to send cabin crew members in separate groups to visit Kinmen's most popular sights and help Kinmen County Government promote safe domestic travel.



Kinmen Tour for 100 Cabin Crew



Kinmen Tour for 100 Cabin Crew Instagram Post

Environmental Education

CAL Group is committed to both corporate social responsibility and sustainability. We actively pursue the improvement and protection of the Earth's environment and bear the responsibility for promoting environmental awareness to achieve sustainable environmental protection goals.

Coastal Cleanup

This year, CAL has planned an internal online coastal cleanup course to comply with government

regulations, avoid gathering of people, respond to international coastal cleanup activities. CAL shared the key points of coastal cleanup, preparation, implementation, and recycling with employees to enhance their knowledge of coastal cleanup. After the pandemic subsides, coastal cleanup activities will be safer and more environmentally friendly. 761 employees completed the training.

Mountain Cleanup Activities

This year, CAL held the Guanyin Mountain Tough Guy Mountain Trail Hiking and Clean Mountain Activities, inviting colleagues to travel together in spring, encouraging colleagues to go to nature, hiking and environmental protection public welfare activities to promote spiritual exchanges among colleagues, family members and friends, At the same time, it also fulfills its corporate social responsibility. Through this event, it contributes to the sustainable development of Taiwan's environment, so that the beauty of the mountains and forests will last forever.

Animal Conservation

In the long-term partnership between Mandarin Airlines and Taipei Zoo in the "Kinmen Blue-Tailed Bee-Eater Egg Retrieval and Nurture Initiative", Mandarin Airlines has assisted in airlifting blue-tailed bee-eater eggs retrieved in Kinmen to Taipei for nurturing for 7 consecutive years. In the past five years, 298 eggs have been collected and 42 hatchlings have been hatched. Tigerair Taiwan has supported the corporate animal adoption plan of Taipei Zoo since 2015. In addition to adopting the tigers, it also adopted the leopard cats and clouded leopards from 2017 to 2022 to support animal conservation with real actions.



Blue-Tailed Bee-Eater Egg Retrieval and Nurture Initiative



Blue-Tailed Bee-Eater
(Source: Taipei Zoo)



Corporate Animal Adoption Plan



Online Coastal Cleanup Course for Employees Were Organized This Year



Guanyin Mountain Tough Guy Mountain Trail Hiking and Clean Mountain Activities

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

2-5-3 Increasing the International Visibility of Local Brands

Theme	Item	2021 Performance
		Number of Materials Shipped / Amount Invested
Humanitarian Relief	Transportation of medical supplies including masks, gloves, negative pressure isolation rooms produced in Japan, and COVID-19 vaccines	Transported more than 300 tons of COVID-19 vaccines totaling approximately 75 million doses / Sponsored the transportation of negative pressure isolation rooms valued at approximately TWD1,003,840
	Provided supplies to Taoyuan Hospital, Ministry of Health and Welfare and its Xinwu Branch and Taoyuan Police Department	TWD 1,800,600
Athletic Sponsorships	2021 League of Legends Pacific Championship Series (PCS), national team in the 2020 Tokyo Olympics, 2021 FIBA Asia Cup qualification, P.LEAGUE + Taoyuan Pilots, table tennis player Chih-Yuan Chuang, fencer Yi-Tung Chen, and tennis player Chun-Hsin Tseng.	TWD 9,240,000

Humanitarian Relief

COVID-19 continued to devastate global industries and economies in 2021. As a major global air cargo carrier, CAL was responsible for the transportation of epidemic prevention supplies and emergency medical supplies during the epidemic. It has, on numerous occasions, shipped COVID-19 vaccines from Europe, United States, and Asia to Taiwan, and has also played a key role in international vaccine distribution with its flight networks to help transport vaccines purchased by other countries from Taiwan to their destinations. In 2021, CAL transported 2 sets of negative pressure isolation rooms produced in Japan, totaling 30 tons; CAL transported approximately 75 million doses of COVID-19 vaccines, totaling 350 tons.



Unloading of Negative Pressure Isolation Rooms



CAL Accepted the Honor of Transporting 1.5 Million Moderna Vaccines Gifted by the United States to Taiwan



Supporting the Front Lines of Pandemic Prevention

Mid-2021 was the most challenging phase in Taiwan's pandemic prevention. In this harsh environment, medical and police personnel on the front lines remained at their posts and protected the health of the people despite tremendous physical and mental pressure. As a company based in Taoyuan, CAL has made use of available company resources to thank the front-line medical and police personnel for their hard work and contribution. CAL provided Taoyuan Hospital, Ministry of Health and Welfare and its Xinwu Branch with 7,500 service supplies and provided Taoyuan Police Department with 9,516 meals from China Pacific Catering Services.



Lunch Boxes from China Pacific Catering Services Provided for Taoyuan Police Department



Service Supplies Provided for Taoyuan Hospital, Ministry of Health and Welfare and its Xinwu Branch

Sports Activity

CAL has always supported local sports development and has always supported the national team. CAL uses its resources to transport national teams to foreign countries to compete. In the case of the 2020 Tokyo Olympics, the most rigorous pandemic prevention measures were taken for all flights. We also prepare gifts and special in-flight meals for athletes to support the national team as they strive to win the gold medal. CAL sponsored multiple sports events in 2021 and continued to support domestic teams and players to improve the sports environment in Taiwan.

Sponsorship	Item / Player
Sporting Events	2021 League of Legends Pacific Championship Series (PCS), national team in the 2020 Tokyo Olympics, national team in the 2021 FIBA Asia Cup qualification
Athletes / Team	P.LEAGUE + Taoyuan Pilots, table tennis player Chih-Yuan Chuang, fencer Yi-Tung Chen, tennis player Chun-Hsin Tseng

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix



CAL Cheers for Athletes on Special Flights to the 2020 Tokyo Olympics



CAL Sponsored the P.LEAGUE + Taoyuan Pilots Opening Game

Mandarin Airlines supported Kinmen County Government which invited Tokyo Olympics gold medalists Yang Lee and Chi-Lin Wang to take part in a charity badminton education and friendly game in Kinmen. Mandarin Airlines arranged for them to take company flights and presented model aircrafts to the two gold medalists at Songshan Airport.



Mandarin Airlines Presented Aircraft Models to Gold Medalists Wang and Lee at Songshan Airport



Yang Lee and Chi-Lin Wang Took the Mandarin Airlines Flight to Kinmen to Promote Sports

The national men's basketball team was scheduled to play in the 2021 FIBA Asia Cup qualification games in the Clark Freeport and Special Economic Zone in the Philippines. To help players and team managers avoid the inconvenience of transfer flights and to reduce pandemic risks, Tigerair Taiwan assisted in providing a chartered flight for the national team with the most comprehensive protection during the pandemic.



Tigerair Taiwan Cheers for the National Men's Basketball Team

2-5-4 Empowering the Disadvantaged to Gain Equal Social Opportunities

Theme	Item	2021 Performance	
		Number of Beneficiaries	Amount Invested (TWD)
Caring for the Disadvantaged	Disadvantaged students, senior and members of the general public	138,091	304,553
	Charity mask sales	75	2,000,000
	Pingtung Startup Happiness Bus 2.0	9,614	1,500,000
	Sister Tong Shan Charity Association	300	1,000,000

Caring for the Disadvantaged

Under the influence of the intensification of the epidemic this year, vulnerable groups are feeling anxious and uneasy due to the lack of resources and information, resulting in increased social inequality. To this end, CAL continues to invest in the social welfare of disadvantaged groups and is committed to helping the disadvantaged to obtain equal opportunities. Whether it is taking care of the elderly, caring for disadvantaged school children, or donating funds, etc., it hopes to achieve its commitment to equal social welfare.

Disadvantaged Students and Communities

As the members of the "Love All Around Team", a CAL volunteers' group, consist mostly of cabin crew, they did not visit remote rural areas to provide care to children this year due to the pandemic. "Remote Rural Efforts", another volunteer group that consisted of employees in CAL office, continued to spread love by venturing into remote rural areas. They visited schools in remote areas of Taiwan each year to communicate professional aviation knowledge and organized 10 courses in remote areas in 2021, which benefited 704 children. CAL ground service employees also launched a "Step 30" event and collected more than 200 pairs of shoes in just three days. They were donated to the Step 30 International Ministries to provide disadvantaged children with the opportunity to run free.

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix



Group Photo of the Remote Rural Efforts Team in Yu Dong Junior High School



Ground Services Division Launched a Shoe Donation Event and Collected More Than 200 Pairs of Shoes in Three Days

Communicating Love to the Local Community

In 2021, CAL donated TWD 1 million to the Taoyuan City Sister Tong Shan Charity Association to take care of the disadvantaged and economically challenged families in Taoyuan to take real actions and support the society and community. CAL also organized charity mask sales and invited employees to purchase masks with special designs and donated TWD 2 million in the revenue to local associations that support the disadvantaged. CAL upholds the spirit of spreading love and takes real actions to help disadvantaged groups in society improve their quality of life and fulfill our commitment to achieve equality and social welfare.



Certificate of Gratitude Presented by the Sister Tong Shan Charity Association



All Employees Were Invited to Support the Charity Mask Sales

Support Tribal Culture on the International Stage

Puzangalan Children's Choir is known as the "Most Beautiful Voice in Taiwan". It is composed of a group of Paiwan children from elementary school to senior high school. They have been invited to perform in numerous large-scale domestic and foreign music festivals and are known. Tigerair Taiwan organized a single-trip charity flight from Kaohsiung to Songshan with a flash mob performance at the waiting room in Taipei Songshan Airport in 2020. It organized another similar event in 2021 and invited Puzangalan Children's Choir to record original songs in the studio. Tigerair Taiwan received the delivery of its first A320neo in April 2021. With the speaker system equipped on the new aircraft, CAL plays the original songs when passengers board. The music will be a pleasant surprise for wishing passengers well on their journey and can help more domestic and foreign visitors learn more about the beautiful voices from Taiwan.



Puzangalan Children's Choir Records Tigerair Taiwan's Cabin Music in the Studio

Mandarin Airlines sponsored the Green Ark Holistic Care Association's charity dinner party to support their care for tribes in remote rural areas and donated aircraft models and gifts.



Green Ark Holistic Care Association's Charity Dinner Party



Certificate of Gratitude

Senior Citizens

CAL continued its partnership with the Huashan Social Welfare Foundation and regularly provides care to disadvantaged elderly people (disability, loss of support, or dementia) living in Taoyuan on the three Chinese festivals. The Foundation organized three charity activities this year including the "Love the Elderly and Love Team Members", "Love the Elderly by Exercising", and "Love the Elderly by Lighting up Mid-Autumn Festival". CAL continued to sponsor charity initiatives despite the pandemic and has provided care to 360 elderly people through social services of the Foundation.



CAL Volunteers Club Provides Pandemic Prevention Gifts to Elderly Who Live Alone



Huashan Social Welfare Foundation Volunteers Present CAL's Gifts to the Elderly

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Pingtung Startup Happiness Bus 2.0

In 2021, the "Pingtung Startup Happiness Bus 2.0 Integrated Service Pilot Program" was continued in 2021 to improve the quality of public transportation in remote areas while improving social welfare for the elderly and students for seeking medical services and going to school. CAL donated TWD 1.5 million to the transportation fund of Pingtung County Government for the townships in the pilot program. Approximately 9,614 people benefited from the program in 2021.



The Happiness Bus Delivered Elderly Residents to Vaccination Sites in Manzhou Township, Pingtung (Source: Pingtung County Government)



Happiness Bus in Manzhou Township, Pingtung (Source: Pingtung County Government)

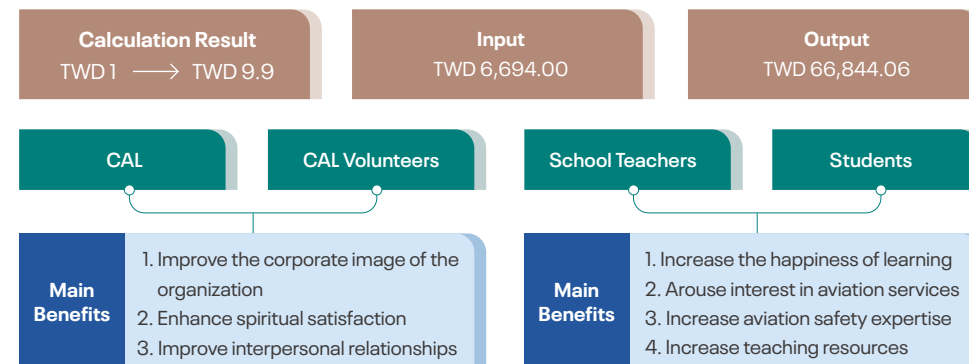
2-5-5 Creating a Sustainable Society GRI 201-1

As a result of the pandemic, most airlines across the globe suspended passenger transport services in 2021. It has been difficult for airline companies in many countries, but CAL quickly adjusted its businesses and continued to survive in the international market. Nevertheless, CAL remains committed to creating a sustainable society. We make the best use of our cargo capacity to continue to link Taiwan's economy to the world. We also spare no effort in supporting social welfare and achieving our goals of creating a positive cycle of social and corporate development.

Social Investment Evaluation

Since 2015, CAL has adopted the London Benchmarking Group (LBG) model to analyze the effectiveness of social investment and quantify the influences of various resources invested in society and the business itself. CAL adopted the Social Return on Investment (SROI) model in 2019 to analyze the benefits of individual charity programs. CAL took the 2021 CAL volunteer teaching activity as the target for calculation. According to the SROI evaluation method, the calculation result of this activity is 9.9, which means that for every TWD 1 invested, TWD 9.9 of social benefit can be generated.

For the contribution to social investments, CAL donated TWD 19,256,500 in 2021. Commercial initiatives, charitable events and community investments represented 60%, 14%, and 26% of our total social investment, respectively. Social investments could be categorized into materials, money, volunteers, and management overhead, which represented 48%, 26%, 1% and 25%, respectively. For more information, refer to the table below.



Types of Social Investment

Item	Amount (TWD)			2021	
	2019	2020	2021	Content	Percentage
Commercial Initiatives	15,384,554	3,272,694	11,629,340	<ul style="list-style-type: none"> • Supported public forums and cultural events • Sponsored Taiwanese athletes in international events 	60%
Charitable Events	728,867	2,134,300	2,671,500	<ul style="list-style-type: none"> • Provided domestic and international disaster relief • Continue to care about local disadvantaged groups 	14%
Community Investments	5,955,017	1,755,197	4,955,660	<ul style="list-style-type: none"> • Organized supportive events for the disadvantaged • Taught Aviation knowledge at elementary schools • Online coastal cleanup 	26%

Input of Social Investment

Item	Amount (TWD)			2021	
	2019	2020	2021	Content	Percentage
Material Donations	10,328,290	2,949,694	8,764,000	Donation of flight tickets and in-flight products	48%
Monetary Donations	7,746,631	2,757,300	4,845,000	Cash input for each event	26%
Employee Volunteers	960,132	384,476	134,962	Volunteers for park tours, teaching, and online coastal cleanup	1%
Management Overhead	3,033,385	1,070,721	4,512,410	Overhead for various activities	25%

Contents

Preface

1 Sustainability Management

2 Value Creation

- 2-1 Trust
- 2-2 Human Resources
- 2-3 Cooperation
- 2-4 Environment
- 2-5 Society

3 Corporate Governance

ESG Data and Appendix

Effectiveness of Social Investment

Item	2019	2020	2021 (Note 1)
Amount of Social Investments (TWD)	60,502,597	22,188,592	26,378,062
Number of Beneficiaries	162,933	355,459	203,758
Volume of Media Exposure / Number of Facebook Fans	196 / 1,019,990	118 / 1,054,515	95 / 1,063,177
Number of Flight Tickets Sponsored	333	81	59

Environmental / Social Effectiveness		
Item	Content / Reach	Amount (TWD)
Other Donations for Art and Charitable Events	2021 Taiwan Lantern Festival, Huashan Social Welfare Foundation, Sister Tong Shan Charity Association, charity mask sales, etc.	3,537,000
Pingtung Startup Happiness Bus 2.0 Integrated Serviced Pilot Program	Approximately 9,614 beneficiaries	1,500,000
Charity Mask Sales	Approximately 75 beneficiaries	2,000,000
Online Coastal Cleanup	Approximately 761 participants	3,712 (Note 2)
Aviation Knowledge Lecture for Remote Rural Areas	777 elementary school students	271,950 (Note 3)
Global Kids' Knowledge Sharing Platform Project	Approximately 44,878 elementary school students	788,400 (Note 4)
Headquarter Visits	30 participants	15,000 (Note 5)
Benefits to Business Operations		
Indicator	Content / Reach	Amount (TWD)
Media Exposure	Media reports: 95 Number of Facebook Fans: 1,063,177	9,500,000 (Note 6)
Number of Flight Tickets Sponsored	59	8,762,000

Effectiveness of Social Involvement Calculation

Note 1: The level 3 alert was announced in mid-2021 as a result of the epidemic. To support the government's related epidemic prevention policies and reduce contact, CAL canceled in-person activities of volunteers, which reduced the number of beneficiaries. However, we increased business activities and community investments to continue to fulfill corporate social responsibility.

Note 2: Tuition: TWD350 / lesson (3 hours) per student × 777 students = TWD271,950.

Note 3: 219 magazines / month subscribed to * TWD300 × 12 months = TWD788,400.

Note 4: 1 visiting fee × TWD15,000 (basic fee per regular visit) = TWD15,000.

Note 5: The benefits from media exposure cannot be estimated and are thus calculated by ad placement:
TWD100,000 / ad × 95 ads = TWD9,500,000.

Note 6: As the aforementioned effectiveness of social involvement is hard to quantify, the environmental / social effectiveness is presented by cost.

Future Plans

1. Enhancing the Overall Quality of National Education

In compliance with the COVID-19 pandemic prevention policies this year, CAL organized 2 aviation lecture events and continued to make use of aviation resources to introduce the CAL brand while complying with pandemic prevention policies to expand the effectiveness of engagement and sponsorship. We adjusted the contents (online or in-person) to cultivate children's interest in learning. We plan to expand the scale of volunteer lectures in the future to enrich education for more children in remote areas. We will also evaluate and invest in promoting international education opportunities for young students based on pandemic conditions in foreign countries and improve academic exchanges.

2. Increasing Taiwan's International Visibility

Due to the continuation of the pandemic in 2021, CAL sought to support international relief efforts and supported the transportation projects of the central government. We completed the transportation of negative pressure isolation rooms to Taiwan and 70 million doses of COVID-19 vaccines as we actively promoted the positive image of Taiwan across the globe. We plan to cooperate with organizations / businesses / athletes in Taiwan to organize joint corporate charity events in the future. We shall use corporate resources and the advantages of the aviation industry to increase the international visibility of local brands and give back to society.

3. Helping the Disadvantaged Overcome Difficulties

In 2021, CAL organized 3 long-term charity programs and 1 charity sales event to provide disadvantaged groups with equal opportunities. We will use company resources to plan charity projects to expand resources and recipients through partnerships to effectively enhance the social welfare of rural and disadvantaged groups in Taiwan, thus forming a "positive cycle" in the society.

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

CHAPTER
3





*Safe Flight, Green Footprints
Starts with Us*

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

3-1 Governance Framework

3-2 Operational Achievements

3-3 Regulatory Compliance

3-4 Risk Management

ESG Data and Appendix

Corporate Governance

3-1 Governance Framework **G**

3-2 Operational Achievements **G**

3-3 Regulatory Compliance **G**

3-4 Risk Management **G**

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

3-1

Governance Framework

GRI 102-5, 102-10, 102-18



HIGHLIGHTS

DJSI / 6th

6th time selected for DJSI Emerging Markets Index

The only Taiwanese airline selected for DJSI Emerging Markets for six consecutive years and ranked in 2nd place among the world's airlines.



5th time selected for Taiwan EMP 99 Index and Taiwan HC100 Index

Selected in the Taiwan Employment Creation 99 Index and the Taiwan High Compensation 100 Index for five consecutive years.

FTSE / 6th

6th time selected for FTSE4Good Index Series

Selected in the FTSE4Good Index Series for six consecutive years.

FTSE
TIP Taiwan / 3rd

3rd time selected for FTSE4Good TIP Taiwan ESG Index

Selected in the FTSE4Good TIP Taiwan ESG Index for the third time.



Taiwan Ratings revised outlook to "stable"

The global aviation industry faced severe challenges during the pandemic and the credit ratings of most airline companies were downgraded. However, CAL has maintained rapid growth in cargo services and stable prospects and Taiwan Ratings revised CAL's outlook from "negative" to "stable" in October 2021 and confirmed CAL's long-term and short-term credit ratings as "twBBB+/twA-2".

Yearbook / 5th

5th time selected for the Sustainability Yearbook

CAL became the only airline company in Taiwan that was selected for the Sustainability Yearbook for the 5th time in 2021.



6%-20%

Top 6%-20% of TWSE / TPEX listed companies

Selected as the top 6%-20% of the excellent corporation award in the Seventh Corporate Governance Review.

TCSA / 8th

8th time in TCSA Award

CAL won the Taiwan Corporate Sustainability Award for the 8th consecutive year and won the Platinum Award in the Transportation Industry for the Sustainability Report for 2021.

GCSA / 3rd

3rd time in GCSA Award

CAL won the Sustainability Reporting Award for the third time and won the Gold Award in 2021.

Board of Directors

As the highest governing organization at CAL, the Board of Directors is responsible for supervising and resolving crucial issues, guiding management, and formulating and complying with policies and rules in accordance with laws and regulations and with the powers granted by the shareholders' meetings. The composition of the Board of Directors is diverse; it is based on talent, regardless of gender, nationality, or race. A total of eleven directors have been elected to the 21st Board of Directors, including three independent directors, two of whom are female, with good qualities and expertise or experience in the management of international companies. Directors are elected for three-year terms (the current term was from June 27, 2018 to June 26, 2021, but was extended to August 12, 2021 due to the COVID-19 pandemic). CAL convenes board meetings at least five times per year and may convene extraordinary meetings when necessary. On March 11, 2021, the China Aviation Development Foundation appointed Mr. Kao Shing-Hwang as a director of the Company, thus increasing the number of directors of the 21st Board of Directors to 12. The 22nd Board of Directors has 13 directors, including 3 independent directors (one of whom is an independent director undertaking public welfare and one is a female independent director). Their term of office is 3 years (from August 12, 2021 to August 11, 2024).

As of January 2022, Shareholders more than 5% of CAL's shares are as follow:

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

Major Shareholder	Contributions to Taiwan	Percentage of Shares Held
China Aviation Development Foundation	Striving for the development of Taiwan's aviation business, national traffic construction, research, and event promotion	31.38%
National Development Fund, Executive Yuan	Accelerating industrial innovation, economic transformation, and national development	8.73%

Note: For experience / education, concurrent posts, expertise, field of experience, compliance of independence, and the operations of the Board of Directors, please refer to the [CAL's Annual Report](#).

Functional Committees of the Board


The Board of Directors has three functional committees: the Remuneration Committee, Audit Committee, and Risk Management Committee. These help the Board of Directors with its supervision and guidance when meetings are convened; in accordance with the respective organizational regulations adopted by the Board of Directors, these committees exercise the powers granted them by law to review and discuss relevant issues, then regularly submit their conclusions and recommendations to the Board of Directors for resolution. Based on the powers specified in the CAL's Remuneration Committee Charter, the Remuneration Committee periodically reviews performance evaluations and remuneration policies, systems, standards, and structures for directors and managerial officers.

Functional Committees


Audit Committee


Frequency of Meetings : At least once every quarter

Composed of all independent directors and is responsible for helping the Board of Directors perform its duties, including supervision of fair presentation of CAL's financial statements, selection (dismissal), independence and performance of CPAs, implementation of internal controls, and compliance with corporate laws and regulations, as well as other statutory tasks.


Risk Management Committee

Frequency of Meetings : Once every quarter


Responsible for helping the Board of Directors review the establishment, implementation, and countermeasures of CAL's overall strategy for risk management in terms of finance, economy, flight safety, personal data protection, and information security.


Remuneration Committee

Frequency of Meetings : At least twice every year

The committee regularly reviews the overall benefit and compensation policy for directors and executives. It also conducts board performance evaluation once a year. In addition, it has a qualified external independent institution or external expert team conduct the evaluation once every three years (last time being in 2020). CAL increases the long term value of the management team to the company through performance evaluation and remuneration systems. The approach creates a sound corporate governance system, and helps CAL achieve sustainability goals.

Refer to [CAL annual report for director and executive remuneration](#)


 CAL's Remuneration Committee Charter

General Audit Office

To enforce corporate sustainability, the General Audit Office is responsible for auditing the corporate governance system to prevent fraudulent activities and corruption. The results of audits are continually followed and required to be corrected by the given time limit. The audited cases in 2021 are summarized below by category. All of the cases have been corrected and reported to the General Audit Office for approval.

Audited Cases in 2021

Type of Cases	Number of Cases Audited	Number of Comments	Number of Corrections
Head Office	16	99	99
Branch	13	70	70
Subsidiary	12	61	61
Transaction in Derivative Products	12	None, all complying with regulations	-
Procedures for Lending Funds and Making Endorsements / Guarantees	4	None, all complying with regulations	-

Contents

Preface

1 Sustainability Management

2 Value Creation

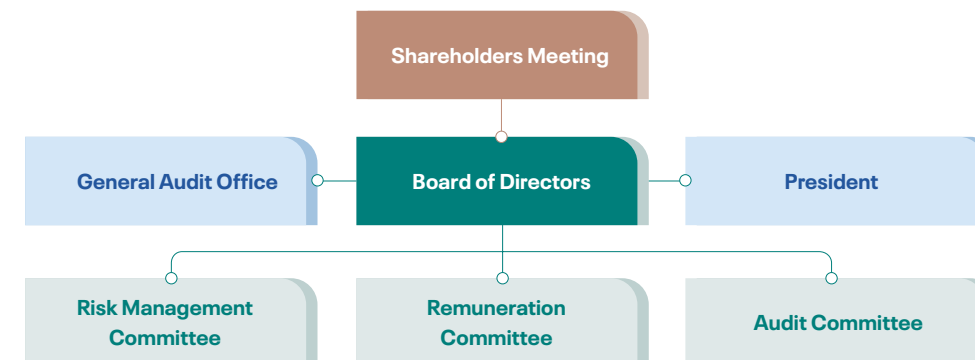
3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

Every year, the General Audit Office compiles an "overall evaluation" based on self assessments performed by individual departments and improvement of errors and irregularities identified in the annual audits. The overall evaluation is used to verify the effectiveness of the internal control system, and provides the basis for the "Declaration of the Internal Control System", which will be submitted to the board of directors for review. The General Audit Office has also established a whistle-blowing mechanism to report fraudulent activities and unethical conduct. If it is found that an employee of CAL or its affiliates is misusing his / her position to take bribes or behave in violation of his / her duties for the purpose of obtaining unlawful benefits for himself / herself or others, thereby causing losses to CAL's property or reputation, an employee or an external partner (e.g., a supplier) is encouraged to report this matter through the management mechanism or through the independent mailbox (auditor@china-airlines.com) published on the website (Stakeholder Contact-Business Conduct) and in the Annual Report (Corporate Governance Report-Corporate Governance).

Corporate Governance Framework



3-2 Operational Achievements

GRI 201-1

The global passenger air traffic has been affected by new variants of the COVID-19 virus and countries continued to maintain tightened border controls, which continued to exert significant impact on the passenger transport market of the aviation industry. As the overall passenger transportation market has not shown signs of recovery, the Company maintains its business strategy of "focusing on the cargo market while developing the passenger market". The fourth quarter was the traditional peak season for cargo and shopping season in Europe and the Americas during the holidays. The congestion in marine shipping has not yet subsided and these factors have increased the demand for air cargo services which outpaced the supply. It increased the market demand for air cargo capacity and continued to push up freight rates. The Company used the 21 cargo aircrafts, supplemented by belly cargo capacity, to integrate the passenger and cargo network and provide a comprehensive plan that actively sought opportunities for providing cargo services. As a result, cargo revenue in 2021 reached a record high. Consolidated operating revenue in 2021 was TWD 138.841 billion (including revenue from passenger transport totaling TWD 6.064 billion, cargo revenue totaling TWD 124.541 billion, and other revenue totaling TWD 8.236 billion). Consolidated operating profit was TWD 14.968 billion; consolidated net profit before tax was TWD 11.127 billion, and final profit after tax attributable to the parent company was TWD 9.38 billion.

Refer to **Financial Performance in the Appendix for More Details**

Operational Achievements

(Unit: TWD)

138.841 billion
Consolidated
Operating Revenue

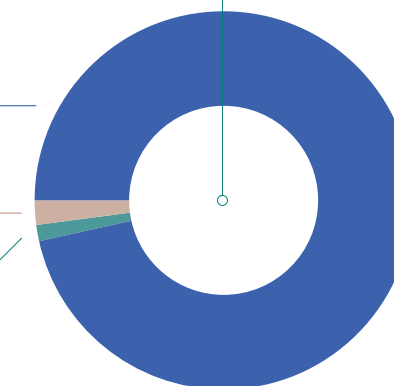
11.127 billion
Pretax Profit

9.380 billion
Attributable to the Parent
Company Net Profit

124.541 billion
Cargo Revenue

8.236 billion
Other Revenue

6.064 billion
Passenger Revenue



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

Consolidated Financial Statement

(Unit: TWD billion)





Item	2018	2019	2020	2021
Passenger Revenue	108.35	111.41	25.704	6.064
Cargo Revenue	49.85	43.79	81.918	124.541
Other Revenue	12.52	13.24	7.628	8.236
Consolidated Operating Revenue	170.71	168.44	115.25	138.841
Pretax Profit	3.08	-0.097	-0.654	11.127

Individual Financial Statement

(Unit: TWD billion)

Item	2018	2019	2020	2021
Operating Revenue	150.26	146.37	106.327	132.14
Operating Cost	137.62	135.01	95.19	106.23
Operating Expense	10.80	11.28	6.252	6.59
Income Tax Expense (Interest)	0.53	0.01	0.031	2.594
Salary Expenses	15.01	14.48	12.892	16.188
An Analysis of Employee Benefits Expense by Function	21.55	21.97	18.931	22.596
Post-employment Benefits	1.69	1.62	1.587	1.527

2021 Performance of International Passenger and Cargo Transport

Routes	Company	Number of Departures (Flight)	Passenger Transport					Cargo Transport				
			Passengers (Person)	Market Share (%)	Revenue Passenger Kilometers (RPK)	Available Seat Kilometers (ASK)	Passenger Load Factor (%)	Tonnage (Metric ton)	Market Share (%)	Freight Revenue Ton Kilometers (FRTK)	Freight Available Ton Kilometers (FATK)	Freight Load Factor (%)
International		41,578	153,591	29.5	631,678,840	3,804,476,098	16.6	1,766,399	66.7	7,598,553,636	10,150,673,604	74.9
		800	18,469	3.5	6,120,415	79,249,261	7.7	10,304	0.4	3,424,832	10,378,280	33.0
		46	2,757	0.5	4,918,332	13,165,020	37.4	63	0.0	88,796	211,096	42.1
	CAL Group	42,424	174,817	33.6	642,717,587	3,896,890,379	16.5	1,776,766	67.1	7,602,067,264	10,161,262,980	74.8
Domestic		18,107	1,113,788	34.1	460,941,717	668,321,131	69.0	11,216	33.7	1,512,238	7,367,415	20.5
Global	CAL Group	60,531	1,288,605	34.0	1,103,659,304	4,565,211,510	24.2	1,787,982	66.7	7,603,579,502	10,168,630,395	74.8

Source: "Civil Air Transport Statistics (Table 18 Overview of Global Passenger and Cargo Transport on Global Routes by Domestic Airlines)" by CAA of MOTC.

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

3-1 Governance Framework

3-2 Operational Achievements

3-3 Regulatory Compliance

3-4 Risk Management

ESG Data and Appendix

3-3

Regulatory Compliance

GRI 102-16, 103-1, 103-2, 103-3, 205-2, 412-2

Internal Regulations and Code of Conduct

Regulatory compliance and integrity are the basis of business management. CAL shapes its corporate culture and values through the formulation of internal regulations and codes of conduct that emphasize business integrity. To establish sound corporate governance as its business foundation, CAL has set the Code of Corporate Governance, the Board Directors Code of Ethical Conduct, Executive Code of Ethical Conduct, the Procedure for Handling Material Inside Information, the Ethical Corporate Management Best Practice Principles, and the Procedures for Ethical Management and Guidelines for Conduct. CAL fully complies with related laws and regulations and is committed to six major principles: protecting shareholders' rights and interests, strengthening Board of Directors functions, adhering to regulations concerning the Board, adopting decision-making procedures of the Board (including avoidance of conflicts of interests), respecting stakeholders' rights and interests, and enhancing information transparency. In accordance with Article 9 of the Procedures for Ethical Management and Guidelines for Conduct, CAL takes a politically neutral stance and has never provided political donations. In addition, the Board of Directors Code of Ethical Conduct (12 directors have completed the course on corporate anti-corruption and fraud cases and prevention practices, with a completion rate of 92%) and Employee Code of Conduct have been formulated to ensure that the Board of Directors and employees behave ethically and comply with anti-corruption laws. In 2017, CAL launched a three-year awareness-raising program to strengthen our corporate sustainability DNA and added the new CAL Group Code of Conduct and implemented related education and training (training details for 2017-2019 as shown under 3-1-2 Compliance in the [2019 CSR Report](#)). In 2020, CAL completed training for all 211 personnel who had not yet completed training, and conducted training for 115 new personnel (Note 1), with a total completion rate of 100%. We trained 48 new personnel in 2021, with a total completion rate of 100% (Note 2).

We provided training on the Code of Conduct to affiliates in 2018. We also organized training on the Code of Conduct and the corporate sustainability vision to promote CSR awareness in 2020 for 5,140 trainees. We have attained our medium-term sustainability goal of providing more than 2 CSR training courses for affiliates by 2025. The Company will continue to promote related training programs in the future. As suppliers are important partners of the Company, we requested them to sign and implement the Supplier Code of Conduct (including compliance with laws and regulations and anti-corruption regulations).

Note 1: Trainees include separated employees.

Note 2: Only applicable to CAL.

In recent years, the Company has continued to strengthen its compliance with the Fair Trade Act and antitrust regulations. The Company used a major international antitrust case as an example to remind its management and all business practitioners to remain vigilant, and the Company also held physical education training in 2020 on "Compliance with the Fair Trade Act" and invited the Fair Trade Commission, the competent authority, to promote the concept of compliance with the Fair Trade Act to our head office, branches, and affiliated companies. In addition, since 2013, front-line business unit supervisors are required to complete an Antitrust Audit Checklist, which is included in the auditor's random checks. In 2021, we conducted E-learning on antitrust compliance for personnel of the passenger units; for personnel of the cargo units, the Cargo Division instructed all stations across all lines to promote the idea of not negotiating with or inappropriately collaborating with competitors to avoid the risk of breaking the law. There were no antitrust-related penalties in 2021.

List of Internal Regulations

Item	Regulating Object(s)	Objective
Code of Corporate Governance	CAL and its subsidiaries	To establish a sound corporate governance system
Ethical Corporate Management Best Practice Principles	Directors, managers, employees, and appointees of CAL and those having substantial control	To strengthen CAL's corporate culture that values business integrity and to improve the business environment for sustainable development
Procedures for Ethical Management and Guidelines for Conduct	Directors, managers, employees, and appointees of CAL and its subsidiaries and those having substantial control	To implement the policy of business integrity, to actively prevent fraudulent conduct, and to regulate matters that should be taken care of by employees when performing business
Procedure for Handling Material Inside Information	Directors, managers, and employees of CAL and those knowing CAL's material inside information due to their identity, occupation or control	To avoid improper disclosure of information and to ensure the consistency and correctness of information published by CAL
Board Directors Code of Ethical Conduct	All directors	To regulate the ethics and conduct of directors when performing their duties in pursuit of CAL's maximum benefits and sustainable development

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

Item	Regulating Object(s)	Objective
Executive Code of Ethical Conduct	CAL's representative (Chairman) and managers (including President, Senior Vice President and equivalents, head of Finance Department, head of Accounting Department, and officers managing affairs and having the right to sign on behalf of the Company)	To guide executives to follow the ethics and conduct and to help stakeholders better understand the Company's code of ethics
Employee Code of Conduct	All employees	To guide employees to follow the codes of conduct covering anti-corruption in the workplace
CAL Code of Conduct	Employees and suppliers of the Company and its subsidiaries, any foundation to which the Company's direct or indirect contribution of funds exceeds 50 percent of the total funds received, and other institutions or juridical persons which are substantially controlled by the Company	To guide the CAL Group to follow related laws and regulations and shape a corporate culture that creates sustainable value for stakeholders
Supplier Code of Conduct	All suppliers and contractors	To achieve the goal of sustainable supply chain management, so as to increase the sustainability of a large number of suppliers

3-4 Risk Management

GRI 102-15

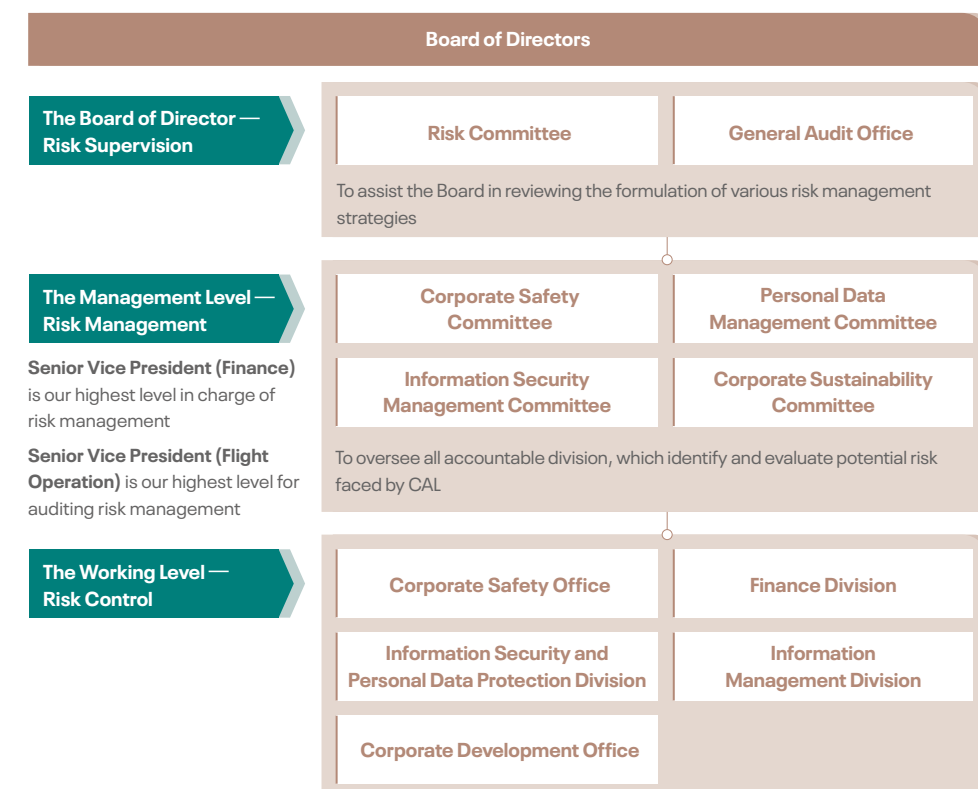
3-4-1 Risk Management Mechanisms GRI 102-11

Risk Governance and Structure

Risk management plays a key role in a company's sustainability. Given the growing number of new forms of risk, CAL has responded by creating a risk management committee under its Board of Directors to hold regular meetings. The General Audit Office sits on the Risk Committee and is responsible for assisting the Board of Directors in reviewing the formulation and execution of the company's risk management strategies and related response measures. The committee also

requires subordinate departments to manage major risks. The Board of Directors also invites external experts or academics to provide 6 hours of relevant advanced courses for the directors each year. On August 12, 2021, a lecture was given to the directors on "Corporate Anti-Corruption and Fraud Cases and Prevention Practices" (12 directors attended, with a 92% training rate). On August 26, 2021, a lecture was given to the directors on "Business Strategies and Corporate Governance in Response to World Unsustainable Risks from the Perspective of COVID-19". Furthermore, security and operating risks are cross-departmental operational risks that should be handled on the management level. We have created the Corporate Security Committee, the Corporate Sustainability Committee, the Personal Information Management Committee, and Information Security Promotion Task Force under the President. The Working level responsible departments such as Corporate Safety Office, Finance Division, Information Security and Personal Data Protection Division, Information Management Division and Corporate Development Office regularly identify and assess potential risks in the company, and devise countermeasures before presenting the results to the appropriate committees and meetings. The senior vice president of finance of the President's Office is the top manager responsible for risk management operations, and the senior vice president of flight operations of the President's Office is the top managerial-level auditor in risk management operations.

CAL Risk Governance and Management Chart



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

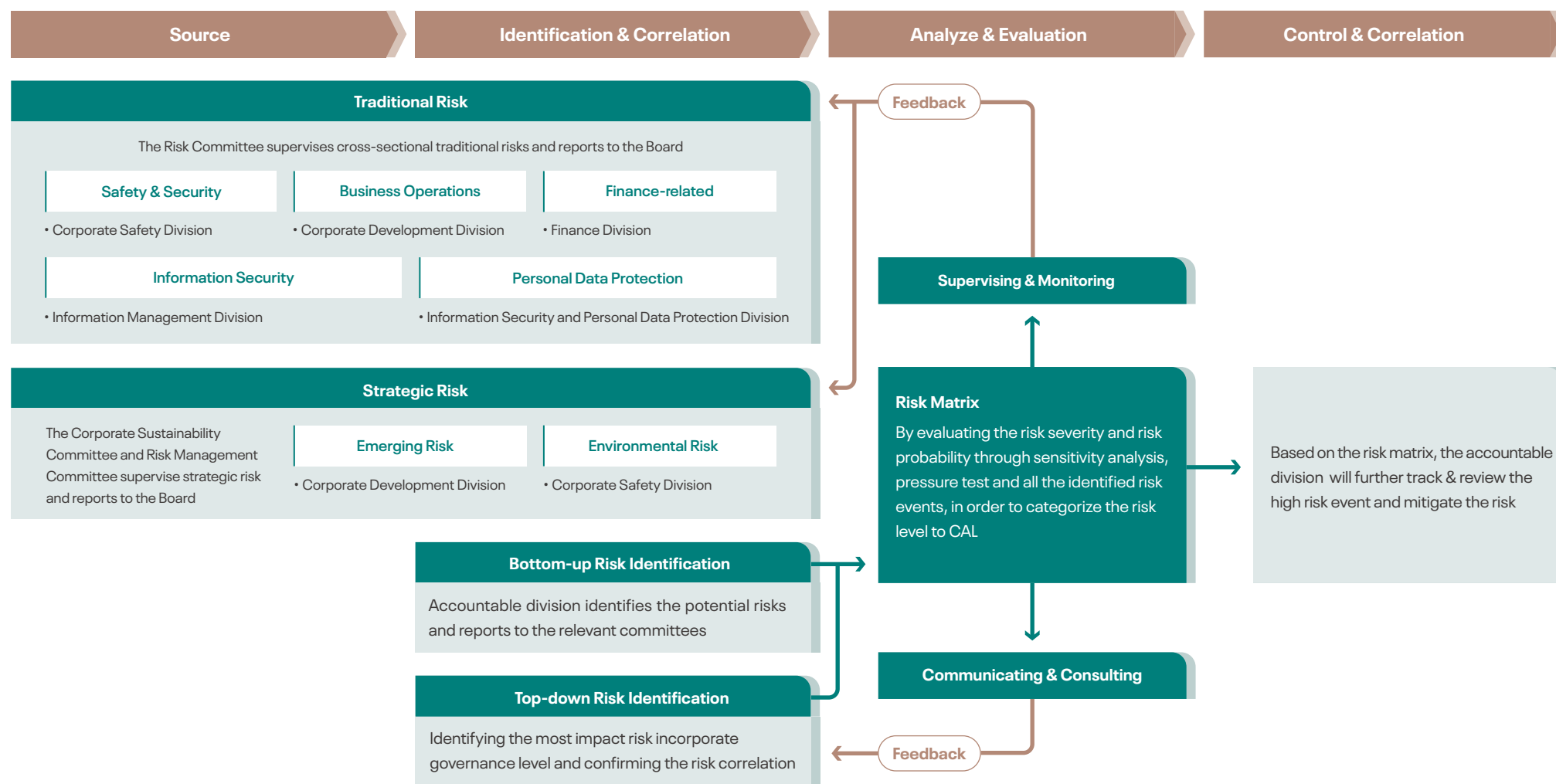
- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

Enterprise Risk Management Framework and Procedures

CAL's risk management framework complies with the framework of Enterprise Risk Management (ERM), where a multi-level organizational approach is adopted to manage and control the overall risks of CAL. The framework emphasizes the inter-correlations between different risks to reduce the overall impact. Following the materiality principle, the CAL ERM framework identifies traditional risks and risks of medium / long-term strategies. All risk impacts and countermeasures are analyzed and proposed through event identification, risk analysis, risk assessment, and risk control, and then followed up and reviewed by the Risk Management Committee and the Corporate Sustainability Committee. CAL has implemented effective accounting and internal audit systems. The internal control system consists of five elements, which are the control environment, risk assessment, control process, information and communication, and supervision procedure. To evaluate the internal control system and the effectiveness of its execution, CAL devises risk-based annual audit plans every year. The General Audit Office conducts regular and ad hoc audits in order to enforce ethical corporate management, reduce related risks to an acceptable level, and prevent corruption and fraud.

CAL ERM Model and Procedure



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

3-4-2 Risk Identification and Countermeasures

CAL manages risks with consideration of the business environment and daily operations in the aviation industry. Risk incidents have different impacts on business operations, in terms of their regions, degrees, and timeliness; risk incidents fall into certain categories and periods of time. If risks are monitored by a single mechanism, doing so may compromise the risk control results. In view of this, CAL divides risk sources by medium-term / long-term strategic risks and traditional risks, and then monitors the risks through the existing Business Strategy Management and Annual Business Plan / Operational Risk Management.

Risk Management Analysis

Level of Risk: **Traditional Risks**
 Short-term Business or Operational Impact
 Less than One Year

Annual Business Plan / Operational Risk Management (reported by the Risk Management Committee)

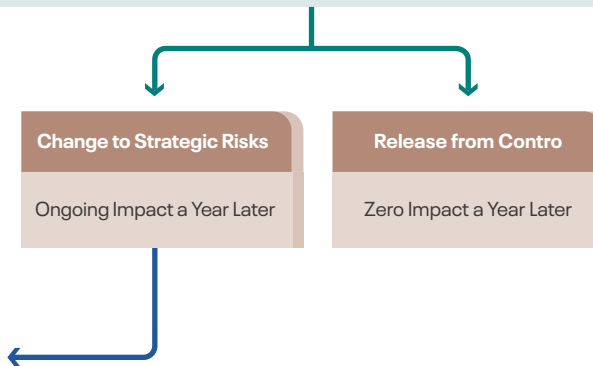
Monitoring Mechanisms	
Risk Identification	Review internal and external environments and identify regular risk incidents that may have short-term impacts on business operations
Risk Analysis	Analyze the impact of risk incidents on business operations in terms of two aspects: Importance to Stakeholders (impact on society and economy / aviation industry; correlation with CAL or relevant departments); and Impact on CAL (impact on finances, operations, or sales; possibility of violations or fines; impact on corporate brand or reputation)
Risk Assessment	Create an operational risk matrix based on two risk analysis aspects, to assess degree of risk for each incident
Risk Control	Develop countermeasures to mitigate impact of high-risk incidents on business operations

Level of Risk: **Medium-term / Long-term Strategic Risks**
 Medium-term / Long-term Strategic or Structural Impact
 More than One Year

Business Strategy Management

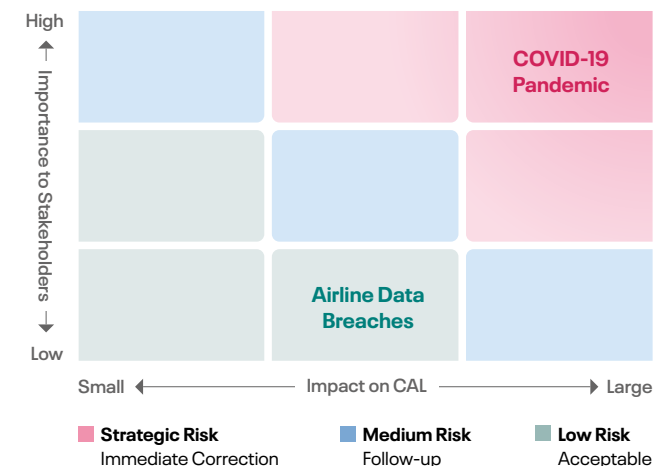
Monitoring Mechanisms

1. Collect industry information, such as internal and external forecasts on market trends and competitor dynamics, every three to five years; conduct SWOT analysis
2. Develop the company vision, mission, and medium-term/long-term strategies, based on the results of SWOT analysis



CAL has established an emerging risk identification process, completed a risk matrix for emerging risks, regularly conducted risk assessment and develop countermeasures to mitigate the impact of emerging risks in the aviation industry.

Emerging Risk Matrix



Traditional Risks

Traditional risks refer to short-term risk incidents that have an impact on business operations for less than one year and can be solved in a short period of time. Traditional risks are divided into safety, operational, financial, personal data protection, and information security, and are managed with the goals of mitigating risks, strengthening resilience to crises, protecting stakeholders' interests, and enhancing corporate sustainability.

1. Safety Risk Management Refer to 2-1 Trust

Safety is the foundation of the aviation industry. Customer trust can only be earned by having an outstanding record of flight safety. Based on the Safety Management System (SMS) and the procedures for safety risk management, the Corporate Safety Office reviews and evaluates internal and external operational risks with respect to flight operations, maintenance, cabin services, and ground operations, then proposes corrective measures.

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix

2. Business Operational Risk Management

Refer to **1-4-1 Analysis of Business Environment in the Aviation Industry**

The aviation industry faces an ever-changing business environment. Apart from major political and economic turmoil, internal and external contingencies may also have considerable impact on CAL. The Corporate Development Office analyzes potential risk incidents that may have an impact on business operations, and develops concrete countermeasures based on the analysis results in order to reduce risks' impact on the Business Strategies and on the Annual Business Plan.

3. Financial Risk Management

Refer to **1-4-1 Analysis of Business Environment in the Aviation Industry**

Economic and financial situations at home and abroad can also affect CAL's business results. Interest rates, exchange rates, inflation, and fuel represent the major costs to airlines; such costs are very sensitive to external factors and can become quite volatile. Therefore, the Finance Division confines these major costs within a certain range using financial hedging instruments, monitors financial risks on a regular basis, and develops relevant strategies and measures to achieve the goals of financial risk management.

4. Personal Data Protection Risk Management

Refer to **2-1-5 Privacy Management**

In recent years, increased awareness regarding privacy and personal data security has made personal data protection a critical focus in business management, both in Taiwan and overseas. To enhance the Company's personal information management capabilities, we have established a Data Protection Officer (DPO). In 2019, we established an Information Security and Personal Data Protection Division as well as a Personal Information Management System to implement, operate, monitor, review, maintain, and improve our personal information protection objectives and policies. The goal is to properly implement our personal information protection management system, strengthen our ability to respond to personal information incidents, and reduce the risk of personal information risks to maintain customers' trust.

5. Information Security Risk Management

Refer to **2-1-4 Information Security Management**

CAL has further strengthened its data security framework and management system, continuing to refine the multi-layer protection mechanism, personnel education and training, social engineering drills and emergency response drills to raise employees' awareness of data security and establish guidelines that comply with laws and regulations and international data security standards. We also integrate the objective results and threat information from third-party verification to reduce overall information security risks.

Mid-term / Long-term Strategic Risks

Medium-term / long-term strategic risks refer to risk incidents that have a strategic or structural impact on business operations for more than one year, and which cannot be solved in a short period of time. CAL reviews and analyzes its market position and collects industry information, such as internal and external forecasts on market trends and competitor dynamics, every three to five years, then conducts SWOT analysis, and develops the company vision, mission, and medium-term / long-term strategies based on the analysis results.

1. Environmental Risk Management

Recognizing the direct impact and importance of climate issues on the aviation industry, CAL has set three objectives in flight operations and ground operations in response to the voluntary carbon reduction initiatives of the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), and "the Civil Aeronautics Administration (CAA)" of the Republic of China (Taiwan). In 2018, CAL further established the Task Force on Climate-Related Financial Disclosures (TCFD). The TCFD is in charge of identifying risks and opportunities, as well as strengthening company-wide carbon management and adaptation to climate change.


2. Emerging Risk Management

The Global Risks Report published by the World Economic Forum (WEF) every January divides risks into five categories: economic, environmental, geopolitical, social, and technological. New risk categories arising from the rapid development of emerging technologies, climate, demographic changes, information security, and cyber attacks have increased, along with gradually increasing likelihoods of such risk incidents. Therefore, CAL has incorporated these identified emerging risks within the scope of risk management, reviews emerging risks on a regular basis, and develops countermeasures.

Impact of the COVID-19 Pandemic on the Global Aviation Industry

Refer to **COVID-19 Special Column**

The COVID-19 pandemic broke out in December 2019 and as of December 31, 2021, has resulted in more than 288 million confirmed cases and nearly 5.44 million deaths (current two-dose vaccine coverage: 49.3%). As the COVID-19 pandemic continues to spread, pandemic prevention and border control measures adopted by different countries are having a huge impact on politics, economics, trade, finance, and employment. Countries are continuing to increase vaccine coverage and starting to attempt to coexist with the virus. The aviation industry has been hard hit by the pandemic, with airline RPK taking a nose-dive. The primary goal of the aviation industry is to "fight against pandemic to survive", to "prioritize pandemic prevention" to build a comprehensive pandemic prevention network, and to launch the "Safe Flight Plan" to enhance passenger health and airline hygiene and safety. The Company has flexibly adjusted its ASK to increase its share of the cargo market, and has implemented cost control measures and striven for cash flow and relief to stabilize its financial position in order to revive its operating capacity.

 **Countermeasures:** Each quarter, emerging risks are regularly reviewed and risk response measures are established by the Board of Directors Risk Committee meetings.



Contents

Preface

1 Sustainability Management

2 Value Creation


3 Corporate Governance

- 3-1 Governance Framework
- 3-2 Operational Achievements
- 3-3 Regulatory Compliance
- 3-4 Risk Management

ESG Data and Appendix


Airline Data Breaches

In recent years, increased awareness regarding privacy and personal data security has made personal data protection a critical focus in business management, both in Taiwan and overseas. Since the European Union's General Data Protection Regulations (GDPR) came into force in 2018, astronomical fines totaling over 100 million euros have been levied. CAL continuously improves our information security governance system and strengthens protection capabilities to comply with domestic and foreign information security laws and regulations. In addition to regularly issuing notices related to personal information protection in response to new international laws and regulations, we also offer personal information protection-related training courses for supervisors to strengthen their knowledge of data protection and better protect personal information and customer privacy. British Airways (BA) had security breaches in its website and smartphone app, which resulted in hackers stealing over 500,000 passengers' data. For this, BA was fined £183 million (TWD 6.4 billion), or 1.5% of its annual revenue in 2018, by the UK's Information Commissioner's Office (ICO). The ICO announced on October 16, 2020, that the fine was reduced to £20 million (TWD\$760 million), taking into account British Airways' subsequent cooperation and the impact of the COVID-19 outbreak on operations.

 **Countermeasures:** Starting from 2022, CAL will gradually introduce the Personal Information Management System (PIMS) verification and conduct personal information re-checking for units with relatively large discrepancies in personal information protection operations in the 2021 audits. We will also continue to conduct domestic and overseas personal information audits and personal information checks for foreign branches.

Geopolitical Risks Intensify as International Financial Situation Remains Unclear

As the global economy continues to recover, the International Monetary Fund (IMF) estimated that the global economy would grow 5.9% in 2021 and 4.4% in 2022. The IMF estimates that the cumulative loss to the global economy due to the COVID-19 pandemic will reach US\$13.8 trillion by 2024. The economic outlook will be more risky due to factors such as the pandemic, supply chain disruptions, labor shortages, rising energy prices, inflation, interest rate hikes, and shrinking balance sheet. Coupled with differences in the speed of vaccination and monetary and fiscal policies across countries, economic divergences will become more pronounced. In addition, trade friction between the U.S. and China continues, and the derived political, military, technological, and economic issues remain unsettled, and may indirectly lead to geopolitical tensions across the Taiwan Strait. This may affect the export of Taiwan's semiconductor and electronics industries. Under the trade war and China's dual control policy on energy consumption (electricity and production restrictions), in order to avoid additional costs after the implementation of new tariffs or related regulations, China's manufacturing industry will accelerate its relocation to Southeast Asia, East Asia or back to Taiwan, continuing the trend of global supply chain restructuring after the US-China trade war.

 **Countermeasures:** CAL has long cultivated the Southeast Asia market and has a comprehensive passenger and cargo network. We will pay close attention to market changes and actively expand our Southeast Asian network to expand the hub effect of regional routes and fully play our role as a transfer hub in Taiwan.

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Believe We Can Always Do Better

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Financial Performance

Five-Year Financial Summary

Consolidated Condensed Balance Sheet - Base on IFRS (CAL Group) (Unit: TWD thousands)

Item	Financial Summary for the Last Five Years					
	2017	2018	2019	2020	2021	
Current assets	47,411,834	52,827,560	51,822,342	61,872,468	85,849,590	
Property, plant and equipment	153,617,531	163,107,718	145,886,971	141,481,694	129,632,046	
Intangible assets	1,019,345	1,210,796	1,182,692	1,076,351	1,008,992	
Other assets	23,850,922	12,990,508	94,155,974	79,763,571	78,230,453	
Total assets	225,899,632	230,136,582	293,047,979	284,194,084	294,721,081	
Current liabilities	Before distribution	60,289,113	60,949,892	76,351,527	62,649,715	53,239,105
	After distribution	61,482,783	62,086,170	76,351,527	62,649,715	-
Non-current liabilities	106,453,000	109,139,606	156,564,335	160,832,796	164,276,958	
Total liabilities	Before distribution	166,742,113	170,089,498	232,915,862	223,482,511	217,516,063
	After distribution	167,935,783	171,225,776	232,915,862	223,482,511	-
Equity attributable to shareholders of the parent	57,023,237	57,081,572	56,553,772	57,559,483	74,043,573	
Capital stock	54,709,846	54,209,846	54,209,846	54,209,846	59,412,243	
Capital surplus	Before distribution	799,999	1,241,214	2,488,907	1,187,327	2,694,529
	After distribution	799,999	1,241,214	1,191,065	836,746	-
Retained earnings	Before distribution	1,664,405	1,615,661	-1,297,842	-350,581	9,253,848
	After distribution	470,735	479,383	0	0	-
Other equity interest	-107,641	58,223	1,196,233	2,543,766	2,713,828	
Treasury shares	-43,372	-43,372	-43,372	-30,875	-30,875	
Non-controlling interest	2,134,282	2,965,512	3,578,345	3,152,090	3,161,445	
Total equity	Before distribution	59,157,519	60,047,084	60,132,117	60,711,573	77,205,018
	After distribution	57,963,849	58,910,806	60,132,117	60,711,573	-

Consolidated Condensed Statement of Comprehensive Income - Based on IFRS (CAL Group)

(Unit: TWD thousands; EPS (net) = TWD)

Item	Financial Summary for the Last Five Years				
	2017	2018	2019	2020	2021
Revenue	156,121,785	170,711,607	168,444,160	115,250,550	138,841,403
Gross profit	21,972,411	17,207,531	16,686,928	10,219,201	23,354,457
Operating profit (loss)	8,826,160	4,022,383	2,665,821	2,184,416	14,968,035
Non-operating income and expenses	-5,302,197	-941,134	-2,762,638	-2,838,213	-3,841,430
Pretax profit (loss)	3,523,963	3,081,249	-96,817	-653,797	11,126,605
Income from operations of continued segments - after tax	2,490,792	2,272,684	-675,002	-279,814	8,956,664
Income from discontinued operations	-	-	-	-	-
Net income (loss)	2,490,792	2,272,684	-675,002	-279,814	8,956,664
Other comprehensive income (income / loss after taxes)	-1,113,176	-578,363	462,758	864,072	30,581
Total comprehensive gain (loss) for the year	1,377,616	1,694,321	-212,244	584,258	8,987,245
Net income attributable to shareholders of the parent	2,208,066	1,790,361	-1,199,798	140,000	9,379,905
Net income attributable to non-controlling interest	282,726	482,323	524,796	-419,814	-423,241
Comprehensive income attributable to shareholders of the parent	1,240,677	1,258,035	-647,085	966,968	9,429,042
Comprehensive income attributable to non-controlling interest	136,939	436,286	434,841	-382,710	-441,797
Earnings (loss) per share	0.40	0.33	-0.22	0.03	1.67

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Condensed Balance Sheet – Based on IFRS (CAL Only)

(Unit: TWD thousands)

Item	Financial Summary for the Last Five Years					
	2017	2018	2019	2020	2021	
Current assets	37,933,696	42,932,859	40,989,612	51,858,785	73,846,790	
Property, plant and equipment	142,265,548	149,029,054	131,029,886	126,414,462	115,174,548	
Intangible assets	989,327	979,708	971,298	867,453	754,349	
Other assets	30,729,421	21,972,600	95,885,709	81,769,065	80,875,029	
Total assets	211,917,992	214,914,221	268,876,505	260,909,765	270,650,716	
Current liabilities	Before distribution	54,925,364	55,179,834	68,000,173	56,740,010	45,666,704
	After distribution	56,119,034	56,316,112	68,000,173	56,740,010	-
Non-current liabilities	99,969,391	102,652,815	144,322,560	146,610,272	150,940,439	
Total liabilities	Before distribution	154,894,755	157,832,649	212,322,733	203,350,282	196,607,143
	After distribution	156,088,425	158,968,927	212,322,733	203,350,282	-
Equity attributable to shareholders of the parent	57,023,237	57,081,572	56,553,772	57,559,483	74,043,573	
Capital stock	54,709,846	54,209,846	54,209,846	54,209,846	59,412,243	
Capital surplus	Before distribution	799,999	1,241,214	2,488,907	1,187,327	2,694,529
	After distribution	799,999	1,241,214	1,191,065	836,746	-
Retained earnings	Before distribution	1,664,405	1,615,661	-1,297,842	-350,581	9,253,848
	After distribution	470,735	479,383	0	0	-
Other equity interest	-107,641	58,223	1,196,233	2,543,766	2,713,828	
Treasury shares	-43,372	-43,372	-43,372	-30,875	-30,875	
Total equity	Before distribution	57,023,237	57,081,572	56,553,772	57,559,483	74,043,573
	After distribution	55,829,567	55,945,294	56,553,772	57,559,483	-

Condensed Statement of Comprehensive Income – Based on IFRS (CAL Only)

(Unit: TWD thousands; EPS (net) = TWD)

Item	Financial Summary for the Last Five Years				
	2017	2018	2019	2020	2021
Revenue	139,815,211	150,264,792	146,372,401	106,327,123	132,140,248
Gross profit	17,966,397	12,649,836	11,364,235	11,136,944	25,910,694
Operating profit	7,358,114	1,847,567	80,235	4,884,855	19,320,396
Non-operating income and expenses	-4,269,911	468,064	-1,267,561	-4,713,760	-7,346,456
Pretax profit (loss)	3,088,203	2,315,631	-1,187,326	171,095	11,973,940
Income from operations of continued segments - after tax	2,208,066	1,790,361	-1,199,798	140,000	9,379,905
Income from discontinued operations	-	-	-	-	-
Net income (loss)	2,208,066	1,790,361	-1,199,798	140,000	9,379,905
Other comprehensive income (income / loss after taxes)	-967,389	-532,326	552,713	826,968	49,137
Total comprehensive gain (loss) for the year	1,240,677	1,258,035	-647,085	966,968	9,429,042
Net income attributable to shareholders of the parent	0.40	0.33	-0.22	0.03	1.67

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Five-Year Financial Analysis

Consolidated Financial Analysis – Based on IFRS (CAL Group)

Item		2017	2018	2019	2020	2021
Financial structure (%)	Debt ratio	73.81	73.91	79.48	78.64	73.80
	Ratio of long-term capital to property, plant and equipment	107.81	103.73	148.54	156.59	186.28
Solvency (%)	Current ratio	78.64	86.67	67.87	98.76	161.25
	Quick ratio	59.46	67.50	54.57	84.18	144.08
	Interest earned ratio (times)	369.02	338.05	103.79	74.92	566.29
Operating performance	Accounts receivable turnover (times)	18.40	18.30	18.13	12.64	11.98
	Average collection period	19.84	19.95	20.13	28.87	30.46
	Inventory turnover (times)	-	-	-	-	-
	Accounts payable turnover (times)	-	-	-	-	-
	Average days in sales	-	-	-	-	-
	Property, plant and equipment turnover (times)	1.06	1.08	1.09	0.80	1.02
	Total assets turnover (times)	0.69	0.75	0.64	0.40	0.48
Profitability	Return on total assets (%)	1.60	1.48	0.76	0.75	3.76
	Return on stockholders' equity (%)	4.26	3.81	-1.12	-0.46	12.99
	Pre-tax income to paid-in capital (%)	6.44	5.68	-0.18	-1.21	18.73
	Profit ratio (%)	1.60	1.33	-0.40	-0.24	6.45
	Earnings per share (NT\$)	0.40	0.33	-0.22	0.03	1.67
Cash flow	Cash flow ratio (%)	47.35	44.34	49.15	15.52	93.70
	Cash flow adequacy ratio (%)	351.58	366.94	518.33	579.28	825.91
	Cash reinvestment ratio (%)	8.82	8.17	12.24	2.98	15.20
Leverage	Operating leverage	3.16	6.00	14.20	16.28	3.11
	Financial leverage	1.18	1.52	-3.95	-2.50	1.19

Financial Analysis – Based on IFRS (CAL Only)

Item		2017	2018	2019	2020	2021
Financial structure (%)	Debt ratio	73.09	73.44	78.97	77.94	72.64
	Ratio of long-term capital to fixed assets	110.35	107.18	153.31	161.51	195.34
Solvency (%)	Current ratio	69.06	77.81	60.28	91.40	161.71
	Quick ratio	49.03	57.87	45.87	76.90	142.97
	Interest earned ratio (times)	350.56	292.02	60.78	99.48	660.63
Operating performance	Accounts receivable turnover (times)	16.62	16.57	16.72	12.34	11.83
	Average collection period	21.96	22.46	21.83	29.57	30.86
	Inventory turnover (times)	-	-	-	-	-
	Accounts payable turnover (times)	-	-	-	-	-
	Average days in sales	-	-	-	-	-
	Fixed assets turnover (times)	1.03	1.03	1.05	0.83	1.09
	Total assets turnover (times)	0.66	0.70	0.61	0.40	0.50
Profitability	Return on total assets (%)	1.54	1.33	0.51	0.89	4.18
	Return on stockholders' equity (%)	3.91	3.14	-2.11	0.25	14.25
	Pre-tax income to paid-in capital (%)	5.64	4.27	-2.19	0.32	20.15
	Profit ratio (%)	1.58	1.19	-0.82	0.13	7.10
	Earnings per share (NT\$)	0.40	0.33	-0.22	0.03	1.67
Cash flow	Cash flow ratio (%)	47.41	43.61	48.16	24.19	109.78
	Cash flow adequacy ratio (%)	357.86	381.09	557.30	610.31	708.23
	Cash reinvestment ratio (%)	8.48	7.68	11.34	4.50	16.38
Leverage	Operating leverage	3.46	11.25	396.38	7.15	2.46
	Financial leverage	1.21	3.45	-0.03	2.32	1.13



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Customer Satisfaction Table in 2021

Passenger Satisfaction

Item	2019	2020	2021
Yearly Goal (%) (Note)	87.2	87.8	87.8
Passenger Satisfaction (%)	87.7	88.6	90.7

Note: Starting from 2020, we set the target for each unit based on its performance in the current year. The President approves the targets at the Annual Service Quality Review Meeting.

Historical Passenger Satisfaction on Service Items

Item	2019	2020	2021	2022 Objectives (Note 1)
Airport Service	89.6	90.5	92.8	89.4
Cabin Crew	89.7	90.2	93	89.5
Cabin Environment	89.3	89.8	93	89
Inflight Catering Service	83.1	82.8	84	83.1
Inflight Entertainment	85.1	85.5 (Note 2)	85.4 (Note 2)	84.5

Note 1: The sum of target values proposed by units show that the overall passenger satisfaction targets in 2022 were the same as 2021.

Note 2: The "Reading materials" item in Inflight Entertainment was excluded starting from 2020.

Freight Customer Satisfaction

Item	2019	2020	2021
Yearly Goal (%)	88.0	88.0	88.0
Freight Customer Satisfaction (%)	88.6	88.5	88.3

Maintenance Customer Satisfaction

Item	2019 (Note 2)	2020	2021
Yearly Goal (Note 1)	8.40	8.40	8.4
Maintenance Customer Satisfaction	8.73	8.57	8.24

Note 1: The full score is 10.

Note 2: In accordance with the 2019H1 Aircraft Management Committee resolution, maintenance customer satisfaction statistics from 2019 excluding low-cost airline customers.

Management of Material Human Rights Issues in 2021 GRI 412-1

The mitigation and remedial measures in the table below shall apply to all locations of operations of CAL across the globe based on local conditions.

Node of Value Chain	Human Rights Issue	Mitigation Measure	Remedial Measure
Upstream / Supply Chain Partners	Right to Privacy	Formulated the "Personal Data Commission Management Procedure" to regulate the matters requiring attention and rights and responsibilities for product / service providers (suppliers) entrusted to handle personal information. The Privacy Protection Policy and Statement on CAL's official website also specify that when CAL provides the involved party's personal information for the third party to use, the third party is requested to comply with the relevant policies, rules, and regulations	CAL has established a sustainable supply chain management mechanism, and the high-risk sustainability issues of supply chain partners are audited, guided, and improved through review
	Right to Health	<ul style="list-style-type: none"> • For suppliers of general goods, a clause regarding quality assurance obligation in the purchase contract states that suppliers must ensure that their products contain no hazards to safety or health, if the nature of their products is hazardous, warning signs and handling methods should be clearly indicated • In response to COVID-19, CAL has requested suppliers to provide a safe and health workplace for employees' health and to ensure that employees can work in an environment without direct or indirect hazards, thus reducing the impact of the pandemic and boosting the overall health of employees. CAL also monitors critical suppliers' health management conditions with the SAQ during the pandemic 	
	Protection of Labor Conditions	<ul style="list-style-type: none"> • Established the China Airlines Policy Statement on Sustainable Supply Chain Management and the China Airlines Supplier Code of Conduct, requiring all suppliers to implement management in accordance with the information security, labor human rights, and labor conditions, as well as the occupational safety spirit as stipulated • Kept abreast of the current status of critical suppliers management through the periodic supply chain sustainability risk survey 	



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Node of Value Chain	Human Rights Issue	Mitigation Measure	Remedial Measure
Midstream / CAL's Operations	Right to Privacy	Formulated a standard operating procedure in accordance with CAL's "Personal Information Management System" for collecting, handling and, using personal information to ensure regulatory compliance	Formulated a standard operating procedure in accordance with CAL's "Personal Information Management System" for collecting, handling and, using personal information to ensure regulatory compliance
	Right to Health	<ul style="list-style-type: none"> • CAL has established the Occupational Safety and Health Committee, which convenes meetings every three months to review, coordinate, and give advice on safety and health related issues • CAL has established the ISO 45001: 2018 and TOSHMS occupational safety and health management systems to perform hazard identification and risk assessment regularly, and has introduced control measures, including operations / engineering, administration, and employee health management • Organized employee health checks regularly to achieve the goals of early detection, early prevention, and early treatment • Countermeasures against COVID-19: <ul style="list-style-type: none"> - Established a tiered cross-unit mobilization mechanism, command system and operating procedures to coordinate relevant units to counteract the pandemic and to increase employee awareness in response to the latest condition of the pandemic by activating different tiers of the response mechanism based on the conditions - Established a health management reporting system and an abnormality tracking and handling mechanism for employees with high risks of exposure; CAL also set up a pandemic personnel management system to monitor employees' conditions - Established a vaccination registration system to monitor vaccination status and arrange vaccination; CAL also set up rapid screening mechanisms before employees report for duty to prevent cluster infections - Implemented a split operation mechanism and adjust the ways of business travel and activated diversified channels to provide real-time information related to the pandemic - Provided crew on duty with full sets of personal protective equipment (PPE) and overnight food packages at outstations - Implemented strict separation of crew during check-in and check-out; required employees to fill out "Personal Health Statement" before flights, enhanced personal health protection and penalties in mission briefing, enhanced hand sanitation, and monitored employees' physical and mental conditions at all times - Enhanced the frequency of in-flight restroom use and cabin crew/passenger separation mechanisms to reduce the possibility of cross-infection - Strengthened management and ground operations during stays in outstations to ensure zero-contact between crew members and airport personnel and disease prevention regulations for ground movements. We place each crew member in individual rooms and prohibit visitors and outings. They must actively report anomalies - Provided CAL's hotel as a home quarantine site for the crew who are unable to quarantine at home and provided flight crew with online fitness courses to promote health - Distributed alcohol spray bottles to ground service personnel and continued to strengthen disease prevention measures. In addition to masks, CAL also provided face shields or goggles as well as gloves and protective suits for special missions - Set up transparent partitions and purchased disinfection carpets for terminal offices, group counters, and ticketing counters 	<ul style="list-style-type: none"> • CAL has conducted statistics and analysis on our occupational incident cases while submitting reports and tracking subsequent safety and health management plans through the operation of the Occupational Safety and Health Committee and the guidance of the ISO 45001: 2018 and TOSHMS occupational safety and health management systems • Formulated a standard report form for major health-check abnormal values to provide employees with health guidance or tracking • Countermeasures against COVID-19: When an employee is found with abnormal signs and relevant symptoms, CAL will actively assist him/her to seek medical attention, and contact and report to related units to record the pandemic prevention process completely and implement health management



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Node of Value Chain	Human Rights Issue	Mitigation Measure	Remedial Measure
Midstream / CAL's Operations	Protection of Labor Conditions	<ul style="list-style-type: none"> • Stated that forced labor is prohibited in the human rights policy and established the methods for employees to perform duties in the Human Resource Manual and the Working Rules • Held regular labor-management meetings at the headquarters and each unit to negotiate labor conditions and welfare with employee representatives • Formed various committees with employee representatives for parking lot management, catering, pension, and employee welfare to protect employees' labor rights and improve the work environment • The manpower-lean policies were implemented to address COVID-19 and to balance business operation and employees' labor conditions • CAL signed three-year collective bargaining agreements with the corporate union and Taoyuan Union of Pilots at the end of 2021 to protect employee rights and interests 	<ul style="list-style-type: none"> • Established diversified grievance channels for prompt and proper responses when employees' labor rights are damaged • Operated various committees with employees' participation to discuss labor conditions, work environment, and workplace safety and to ensure improvements as well as remedial and preventive measures against violations of rights and interests • CAL has always been committed to upholding human rights and protecting employees' rights and benefits. We provide employees with special leave and benefits superior to requirements in the Labor Standards Act. In 2021, we received one penalty for extended work hours from the competent authority. It was a repeated penalty for 2021 which was imposed after a penalty in 2018 was withdrawn in administrative litigation. CAL has applied for another administrative relief for this case and there have been no penalties based on labor inspections in 2021
Downstream / Customers	Right to Privacy	CAL has always been committed to protecting customers' personal information and privacy in accordance with the Personal Data Protection Act of the R.O.C, the General Data Protection Regulation (GDPR), the California Consumer Privacy Act (CCPA). CAL collects, processes, and uses personal information in a reasonable and safe manner based on the specific purposes authorized by customers, ensuring that the customer can exercise their rights to inquiries, amendment, removal, restriction of personal data use, and withdrawal of consent under the Personal Data Protection Act	CAL has formulated the online form of "Inquiry and Application for Personal Data Rights" and set the DPO mailbox for customers to consult and apply for personal data rights; we also respond to customers within the period specified in the Personal Data Protection Act
	Right to Health	<ul style="list-style-type: none"> • On the front of flight safety, CAL implemented the Safety Management System (SMS) to prevent potential risks or the impact of hazard factors through continuous risk identification and management. Established a safety reporting system for all employees to encourage them to actively identify potential safety impact factors and to strengthen risk control • In terms of in-flight food safety, CAL has formulated the Caterer Selection Regulations; all local caterers should obtain relevant local food safety certifications so that they can be selected as an in-flight food supplier • Countermeasures against COVID-19: <ul style="list-style-type: none"> - Passengers are asked to have their temperature checked before boarding and to wear a mask throughout the flight or when they check in or when waiting for flights. Moreover, posters have been set up in the airport to remind passengers to maintain social distancing - Simplified the in-flight services, reinforced environmental cleaning and disinfection, and promoted the pandemic prevention measures on board that shall be followed (such as changing seats is not allowed) for customers to lower the risk of taking flights - Adjusted in-flight food services in compliance with the current level of the pandemic announced by the MOHW and cooperated with different countries to provide different food services based on the local pandemic conditions and their principle of pandemic prevention 	<ul style="list-style-type: none"> • CAL has set up the Flight First-Aid Advisory System; when passengers feel unwell during check-in, boarding, or flight, they can obtain professional medical advice through this system. CAL also launched the "In-Flight Physician" project with the support of Taiwan Medical Association so that physicians can provide immediate professional assistance in the event of a medical emergency during flights • Countermeasures against COVID-19: <ul style="list-style-type: none"> - If a passenger's body temperature is higher than normal range or they show other signs or symptoms before boarding, they are asked to undergo a health examination at local medical institutions and then report to relevant units - If passengers on board are found with relevant symptoms or start feeling unwell, CAL will actively assist them to change seats and report to the relevant units to take further responses
	Protection of Labor Conditions	Not applicable	Not applicable

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- **Relevant Data Statistics of Human Resources**
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Relevant Data Statistics of Human Resources

Workforce Structure of CAL Group in 2021

Category	Groups	2021			2020			2019		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Full-time Employees		10,753	5,591	5,162	874	417	457	646	289	357
Contracted Employees		132	34	98	-	-	-	-	-	-
Age	Under 30	1,211	490	721	188	53	135	241	69	172
	31-50	6,672	3,159	3,513	494	219	275	334	158	176
	Above 51	3,002	1,976	1,026	192	145	47	71	62	9
The Job Category	Business	3,074	1,280	1,794	384	140	244	299	108	191
	Air service	4,123	1,558	2,565	221	91	130	287	137	150
	Maintenance	2,172	2,080	92	141	129	12	27	26	1
	Others (Note 1)	1,516	707	809	128	57	71	33	18	15
Ranking	Senior Management (Note 2)	102	77	25	23	21	2	11	9	2
	Mid-level Management	337	240	97	38	28	10	26	15	11
	Junior Management	172	124	48	38	29	9	45	23	22
	Non-executive Employees	10,274	5,184	5,090	778	342	436	564	242	322
Region	Taiwan	9,583	5,049	4,534	809	391	418	643	288	355
	China	238	114	124	65	26	39	-	-	-
	Asia	669	287	382	-	-	-	3	1	2
	USA	249	106	143	-	-	-	-	-	-
	Europe	102	47	55	-	-	-	-	-	-
	Oceania	44	22	22	-	-	-	-	-	-
Education	Master / PhD	1,358	780	578	82	54	28	81	44	37
	Bachelor	8,961	4,422	4,539	736	324	412	543	230	313
	Senior High	519	387	132	56	39	17	18	14	4
	Others	47	36	11	-	-	-	4	1	3
Total		10,885	5,625	5,260	874	417	457	646	289	357
The Total Number includes	Indigenous Employees	77	39	38	9	-	9	6	3	3
	Disabled Employees	105	73	32	4	2	2	5	2	3

Note 1: The job category – others includes executives higher than the rank of vice president, auditors, accountants, information technology personnel, and other employees that are not within the aforesaid categories.

Note 2: Senior management refers to Level 1 managers and deputy managers or above; mid-level management refers to Level 2 managers and deputy managers; junior management refers to Level 3 managers and deputy managers.

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Workforce Gender Diversity of CAL in 2021

Diversity Indicator	Percentage (0 - 100 %)	Public Target
Share of women in total workforce (as % of total workforce)	48.32%	48% / Target year: 2022
Share of women in all management positions, including junior, middle and top management (as % of total management positions)	27.82%	27% / Target year: 2030
Share of women in junior management positions, i.e. first level of management (as % of total junior management positions)	27.91%	27% / Target year: 2025
Share of women in top management positions, i.e. maximum two levels away from the CEO or comparable positions (as % of total top management positions)	24.51%	25% / Target year: 2025
Share of women in management positions in revenue-generating functions (e.g. sales) as % of all such managers (i.e. excluding support functions such as HR, IT, Legal, etc.)	29.13%	29% / Target year: 2025
Share of women in STEM-related positions (as % of total STEM positions)	7.15%	7% / Target year: 2025

Note: According to DJSI definition, STEM refers to positions related to Science, Technology, Engineering, and Math.

Employee Turnover Statistics of CAL Group in 2021

Category	Groups	2019						2020						2021					
		2019		2020		2021		2019		2020		2021		2019		2020		2021	
		Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Age	Under 30	210	30.88%	317	40.75%	152	29.12%	70	64.22%	59	57.84%	44	40.37%	43	53.75%	43	63.24%	59	61.46%
	31-50	220	32.35%	189	24.29%	172	32.95%	27	24.77%	21	20.59%	47	43.12%	28	35.00%	20	29.41%	29	30.21%
	Above 51	250	36.76%	272	34.96%	198	37.93%	12	11.01%	22	21.57%	18	16.51%	9	11.25%	5	7.35%	8	8.33%
Gender	Male	356	52.35%	353	52.35%	310	59.39%	60	55.05%	59	57.84%	69	63.30%	37	46.25%	31	45.59%	44	45.83%
	Female	324	47.65%	425	45.37%	212	40.61%	49	44.95%	43	42.16%	40	36.70%	43	53.75%	37	54.41%	52	54.17%
Region	Taiwan	495	72.79%	501	64.40%	311	59.58%	101	92.66%	91	89.22%	106	97.25%	80	100.00%	68	100.00%	96	100.00%
	China	16	2.35%	22	2.83%	19	3.64%	8	7.34%	11	10.78%	3	2.75%	0	0.00%	0	0.00%	0	0.00%
	Asia	119	17.50%	220	28.28%	125	23.95%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
	USA	35	5.15%	21	2.70%	49	9.39%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
	Europe	11	1.62%	8	1.03%	10	1.92%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
	Oceania	4	0.59%	6	0.77%	8	1.53%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Voluntary	-	518	4.28%	416	3.65%	371	3.41%	-	-	-	-	-	-	-	-	-	-	-	-
Involuntary	-	162	1.34%	362	3.18%	151	1.39%	-	-	-	-	-	-	-	-	-	-	-	-
Total		680	5.62%	778	6.83%	522	4.80%	109	10.65%	102	10.73%	109	12.47%	80	11.25%	68	9.34%	96	14.86%

Note: Voluntary separation includes resignations, early retirements, and requests to resignation. Involuntary separation includes mandatory retirements and layoffs.

Contents

Preface

1 Sustainability Management


2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Training Statistics of CAL Group from 2019 to 2021

Company	Category	2019			2020			2021						
		Training Hours	Amount	Average Hours	Training Hours	Amount	Average Hours	Training Hours	Amount	Average Hours	Total expenses	Number of classes opened	Training completion rate	
	The Job Category	Business	104,414	4,515	23.13	115,129	2,110	54.56	98,204	3,301	29.75	190,247,299	3,020	99.30%
		Air Service	147,744	4,424	33.40	149,128	4,360	34.20	134,727	4,408	30.56			
		Maintenance	38,170	2,513	15.19	52,568	2,256	23.30	92,594	2,284	40.54			
		Others	10,269	677	15.17	31,669	1,381	22.93	28,970	1,631	17.76			
	Gender	Male	128,956	6,122	21.06	162,915	5,240	31.09	167,488	5,705	29.36			
		Female	171,642	6,037	28.43	185,578	4,867	38.13	187,007	5,919	31.59			
	The Job Category	Business	5,267	362	14.55	8,462	322	26.28	5,123	310	16.52	32,433,270	9,587	100.00%
		Air Service	17,716	277	63.96	15,828	267	59.28	10,713	257	41.68			
		Maintenance	19,597	158	124.03	13,970	151	92.52	9,530	153	62.28			
		Others	5,537	121	45.76	1,548	70	22.11	886	39	22.71			
	Gender	Male	37,761	471	80.17	27,766	424	65.49	18,657	394	47.35			
		Female	10,356	447	23.17	12,044	386	31.20	7,939	365	21.75			
	The Job Category	Business	8,355	325	25.71	7,299	360	20.27	6,352	299	21.24	1,917,794	872	99.54%
		Air Service	20,253	323	62.70	19,092	308	61.99	9,141	287	31.85			
		Maintenance	495	32	15.47	296	27	10.96	522	27	19.33			
		Others	533	31	17.18	365	33	11.06	282	33	8.55			
	Gender	Male	16,499	309	53.40	14,884	325	45.80	8,503	289	29.42			
		Female	13,136	402	32.68	12,168	403	30.19	7,794	357	21.83			

Note 1: Others include executives higher than the rank of vice president, auditors, accountants, information technology personnel, and other employees that are not within the aforesaid categories. For Tigerair Taiwan, others include the Chief Financial Officer, Chief Operating Officer, Chief Commercial Officer, Chief Executive Officer, and Chairman, as well as the Finance Department, Accounting Department, and Information Department.

Note 2: Training hours exclude those at outstations.

Note 3: Average training hours = Total training hours ÷ total number of employees in the category. For CAL, completion rate of training = average completion rate of training. For Mandarin Airlines and Tigerair Taiwan, completion rate of training = completion rate of training in each unit ÷ number of units.

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Gender Pay Gap Analysis of CAL in 2021

Indicator	Difference between Men and Women Employees (%)
Mean gender pay gap	20%
Median gender pay gap	23%
Mean bonus gap	14%
Median bonus gap	21%

Note: Due to the differences in salary structure, pilots are not included in the scope of calculation of the table.

Unpaid Parental Leave of CAL Group in 2021

Unpaid Parental Leave Statistics									
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Numbers of employees eligible for parental leave in 2021 (A)	598	386	984	32	23	55	45	19	64
Actual Numbers of employees applying for parental leave in 2021 (B)	330	47	377	20	3	23	28	1	29
Rate for employees applying for parental leave in 2021 (B*100 / A)	55.18%	12.18%	38.31%	62.50%	13.04%	41.82%	62.22%	5.26%	45.31%
Numbers of employees expecting to return in 2020 after parental leave in 2021 (C)	165	26	191	7	1	8	14	0	14
Numbers of employees applying to return in 2021 (D)	175	21	196	5	1	6	14	1	15
Return rate in 2021 (D*100 / C)	106.06%	80.77%	102.62%	71.43%	100.00%	75.00%	100.00%	0.00%	107.14%
Total number of employees returning after parental leave in 2020 (E)	222	8	230	6	0	6	4	0	4
Number of employees completing one full year of service after returning from parental leave in 2020 (F)	2.19	0.08	2.27	4	0	4	3	0	3
Rate on return after parental leave in 2021 (F*100 / E)	98.65%	100.00%	98.70%	66.67%	0.00%	66.67%	75.00%	0.00%	75.00%

Note: (A): Date of birth from January 1, 2018 to December 31, 2021.

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Comparing the Frequency-Severity Indicator and Occupational Injury Statistics Over the Past 3 Years

Year	Item	Unit					Total
		CAL Park	EMO	Taipei Branch	Kaohsiung Branch	Taichung Branch (Note 9)	
2019	Number of Annual Disabling Injuries	43	12	0	7	0	62
	Absence Days of Annual Disabling Injuries	1,078	282	0	37	0	1,397
	FR	3.12	2.32	0	5.85	0	2.97
	SR	78	53	0	30	0	66
	FSI	0.49	0.35	0	0.41	0	0.44
2020	Number of Annual Disabling Injuries	26	6	1	4	0	37
	Absence Days of Annual Disabling Injuries	614	177	6	15	0	812
	FR	2.05	1.28	1.32	3.65	0	1.93
	SR	48	37	7	13	0	42
	FSI	0.31	0.21	0.09	0.21	0	0.28
2021	Number of Annual Disabling Injuries	24	7	0	1	Not applicable	32
	Absence Days of Annual Disabling Injuries	523	99	0	0	Not applicable	622
	FR	1.83	1.48	0	0.92	Not applicable	1.63
	SR	40	21	0	0	Not applicable	32
	FSI	0.27	0.17	0	0	Not applicable	0.22

Note 1: Calculated at 8 hours per day per person.

Note 2: Disabling injury frequency rate(FR)= (Number of annual disabling injuries ÷ Annual working hours) × 1,000,000

The number of annual disabling injuries includes the number of annual fatalities, permanent total disabilities, permanent partial disabilities, and temporary total disabilities.

The calculation is rounded to two decimal places.

Note 3: Disabling injury severity rate(SR)=(Absence days of annual disabling injuries ÷ Annual working hours) × 1,000,000

The absence days of different types of disabling injuries are calculated based on the online Occupational Hazard System.

The calculation is rounded to the nearest integer.

Note 4: Frequency-Severity Indicator (FSI)= $\sqrt{((FR \times SR) / 1000)}$

The calculation is rounded to two decimal places.

Note 5: 2018-2020 averages in the air transport industry published by the Ministry of Labor: FR=3.39, SR=54, FSI=0.43.

Note 6: Continue to review the FSI to understand the operational performance of each unit's occupational disaster prevention and improve it.

Note 7: TPE has established an occupational safety unit since 2013.

Note 8: This statistic does not include commuter traffic accidents.

Note 9: The organization of Taichung branch has been deleted since 2021.

Contents

Preface

1 Sustainability Management


2 Value Creation



3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- [Relevant Data Statistics of Human Resources](#)
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Occupational Hazards Statistics of CAL Group in 2021

Item								
	Male	Female	Total	Unit				
				CAL Park	EMO	Taipei Branch	Taichung Branch (Note 8)	Kaohsiung Branch
The Number of Recordable Occupational Injuries	22	10	32	24	7	0	Not applicable	1
Disabling injury frequency rate	2.1	1.09	1.63	1.83	1.58	0	Not applicable	0.92
Disabling injury severity rate	38	25	32	40	21	0	Not applicable	0
Incidents resulting in work-related fatalities	0	0	0	0	0	0	Not applicable	0
The Rate of Fatalities as a result of Occupational Injury	0.00	0.00	0.00	0.00	0.00	0.00	Not applicable	0.00
Occupational disease rate	0.00	0.00	0.00	0.00	0.00	0.00	Not applicable	0.00
The Number of High-consequence Occupational Injuries	1	0	1	1	0	0	Not applicable	0
The Rate of High-consequence Occupational Injuries	0.09	0.00	0.05	0.07	0.00	0.00	Not applicable	0.00
Absence rate	0.66%	0.76%	0.71%	0.63%	0.85%	1.50%	Not applicable	0.70%
The Total Working Hours	10,472,442	9,148,758	19,621,200	13,102,380	4,708,092	733,056	Not applicable	1,077,672

Item						
	Male	Female	Total	Male	Female	Total
The Number of Recordable Occupational Injuries	2	0	2	2	2	4
Disabling injury frequency rate	2.44	0.00	1.15	3.29	2.69	2.96
Disabling injury severity rate	182	0	86	3.29	2.69	2.96
Incidents resulting in work-related fatalities	0	0	0	0	0	0
The Rate of Fatalities as a result of Occupational Injury	0.00	0.00	0.00	0.00	0.00	0.00
Occupational disease rate	0.00	0.00	0.00	0.00	0.00	0.00
The Number of High-consequence Occupational Injuries	0	0	0	0	0	0
The Rate of High-consequence Occupational Injuries	0.00	0.00	0.00	0.00	0.00	0.00
Absence rate	0.68%	1.01%	0.85%	0.80%	1.81%	1.36%
The Total Working Hours	817,936	909,376	1,727,312	607,079	741,985	1,349,064

Note 1: Disabling injury frequency rate(FR)= (Number of annual disabling injuries ÷ Annual working hours) × 1,000,000

Note 2: Disabling injury severity rate(SR)=(Absence days of annual disabling injuries ÷ Annual working hours) × 1,000,000

Note 3: Absence rate=(Absence days ÷ Annual working days) × 100%

Note 4: Mandarin Airlines/Tigerair Taiwan only have one business location in Taiwan.

Note 5: Disabling Injury Frequency Rate is equivalent to the definition of Recordable Occupational Injuries Rate in the GRI Standards.

Note 6: High-consequence Occupational Injuries: Occupational injuries that lead to fatalities or that are barely possible / difficult to completely recover within six months. Rate of high-consequence occupational injuries (excluding fatalities)=[Number of high-consequence occupational injuries (excluding fatalities) / Number of hours worked] × 1,000,000

Note 7: The most common type of occupational injuries is falling.

Note 8: The organization of Taichung branch has been deleted since 2021.



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Environmental Performance

Item		Unit	2018	2019	2020	2021	2021 Objective	Achievement Rate
Category 1 GHG Emissions	Flight operations	Tons CO ₂ e	7,229,903	7,059,083	5,787,751	5,875,531	6,004,454	102%
	Ground Operations	Tons CO ₂ e	3,511	4,981	3,051	2,897		
Category 2 GHG Emissions	Ground Operations	Tons CO ₂ e	19,949	18,169	17,572	16,697	17,545	105%
Category 3-6 GHG Emissions (Note 1)	Ground Operations	Tons CO ₂ e	1,644,656	1,607,690	3,109,822	3,174,662	Expanded the scope of inventory in accordance with new ISO standards	100%
Aviation Fuel Efficiency	All Aircrafts (non-renewable energy)	Tons	2,284,937	2,230,971	1,829,328	1,857,073	Whole Fleet Fuel Efficiency 0.2349 Ton / Thousand RTK	100%
	Sustainable Aviation / Alternative Fuel	Tons (%)	20.4 (8.93e-4)	0	0	7.7 (4.15e-4)	Use of new aircraft (ferry flight) back to Taiwan 10% SAF	100%
Aviation Fuel Efficiency	Passenger Aircraft	L / RPK*100	4.2187	4.2859	15.2246	18.9433	14.996	79%
	Cargo Aircraft	L / FRTK	0.2142	0.2285	0.2252	0.1830	0.2218	121%
	All Aircrafts (Note 2)	Tons / thousand RTK	0.2394	0.2459	0.2586	0.2442	0.2547	104%
Energy Consumption	Fossil Fuels	MWh	29,815,419	29,114,586	23,873,099	24,234,273	Energy consumption 24,747,398	102%
	Electricity Purchased	MWh	36,009	34,088	34,523	33,260		
	Elevator Power Regeneration	kWh	1,061	1,423	1,177	889	Full operation	100%
	Renewable Energy (Solar)	MWh	NA	90	117	127	120	106%
Water Resources	Tap Water Use Volume	Kilotons	148.22	146.49	126.77	112.77	Total Water Consumption: 144.955 thousand tons	109%
	Rainwater Use Volume	Kilotons	11.48	15.34	8.05	5.65		
	Recycled Water Use Volume	Kilotons	31.94	17.41	8.64	14.23		
	Total Water Consumption	kilotons	191.64	179.24	143.46	132.65		
	Recycling Ratio (Note 3)	%	21.55%	11.88%	6.8%	12.62%		
	Heavy Metal Wastewater	Tons	10,014	9,620	6,750	7,715		
	Organic Wastewater	Tons	10,443	11,638	12,593	9,224		



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Item		Unit	2018	2019	2020	2021	2021 Objective	Achievement Rate
Cabin Waste (Note 4)	Output	kg	3,669,703	4,168,857	1,677,658	920,924	Air and ground waste (kg): 1. Recycle amount: 809,952 2. The amount of incineration (including power generation): 859,264 3. Other disposal volumes: 154,117	1. 117% 2. 107% 3. 199%
	Amount Recycled	kg	995,369	1,116,396	733,706	504,226		
	Recycling Ratio	%	27.12%	26.78%	43.73%	54.75%		
	Incineration (including power generation)	kg	2,674,334	3,052,460	943,952	416,697		
Ground Waste (Note 5)	Hazardous Industrial Waste	kg	14,785	17,717	12,657	12,091		
	Chromium-containing Batteries	kg	1,649	1,098	820	1,069		
	General Industrial / Domestic Waste	kg	998,518	935,984	647,317	636,400		
	Amount Recycled	kg	456,803	434,648	229,971	188,790		
	Recycling Ratio	%	45.01%	45.52%	35.53%	29.67%		
	Incineration (including power generation)	kg	399,266	381,626	332,577	383,180		
NOx	Passenger Aircraft	g / RPK	0.0150	0.0149	0.0400	0.0538	0.0500	92%
	Cargo Aircraft	g / RTK	0.0301	0.0321	0.0317	0.0290	0.0315	107%
Plastic Packaging (plastic packaging related to passenger /cargo transport) (Note 6)	Weight of Plastic Packaging	Tons	432	479	353	411	422	103%
	Percentage of Purchase of Plastic Packaging (Note 7)	%	0.15%	0.15%	0.06%	0.02%	0.02%	100%
	Percentage of Recyclable Plastic Packaging	%	42.2%	32.5%	81.3%	91.2%	84%	109%
	Percentage of Recycled Plastic Packaging (Note 8)	%	10.27%	21.62%	9.83%	3.4%	2.16%	157%

Item	Total Weight of Package (ton)	Percentage of Purchase (Note 7)	Percentage of Recycled Materials and Certified Materials (Note 8)
Wood or Paper Packaging	65	1.14%	52.83%
Metal Packaging	55	0.02%	100%
Glass Packaging	0.1	0.1%	100%

Note 1: Scope 3 emissions from 2017 to 2019 include energy-related activities, employee commuting, etc. In 2020, according to the ISO14064-1:2018 standard, expand the calculation items in category 3 to 6. All data have passed external verification.

Note 2: The total aviation fuel consumption of all aircraft fuel efficiency includes training aircraft and maintenance. The fuel consumption of passenger and freight aircraft only includes passenger and freight aircraft fuel.

Note 3: Recycling ratio = Total amount of recycled rainwater, intermediate water, wastewater / total consumption of water resources.

Note 4: The scope includes passenger and cargo services since 2020.

Note 5: The scope of statistics includes EMO, CAL Park, Kaohsiung Branch, and VIP rooms of four stations (Taoyuan, Songshan, Kaohsiung, and Tainan).

Note 6: As in-flight supplies (e.g., tableware) are required to comply with relevant food sanitation regulations to ensure that they are fireproof and legal, biodegradable plastic packaging has not been used.

Note 7: The percentage of purchase is calculated as Purchase amount / cost of goods sold.

Note 8: The percentage of recycled materials and certified materials is calculated as follows: Weight of recyclable packaging (including certified materials) / Total weight of packaging. The weight of recyclable packaging refers to the weight of packaging that has been recycled upon CAL's confirmation.

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- [GRI Content Index](#)
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

GRI Content Index GRI 102-55

GRI Standard	Disclosure	Page Number & Response
GRI 101: Foundation		
General Disclosures		
Organizational Profile		
102-1	Name of the organization	5
102-2	Activities, brands, products, and services	8
102-3	Location of headquarters	8
102-4	Location of operations	8
102-5	Ownership and legal form	128
102-6	Markets served	8
102-7	Scale of the organization	8
102-8	Information on employees and other workers	71
102-9	Supply chain	85
102-10	Significant changes to the organization and its supply chain	128
102-11	Precautionary principle or approach	133
102-12	External initiatives	35
102-13	Membership of associations	35
Strategy		
102-14	Statement from senior decision-maker	6
102-15	Key impacts, risks, and opportunities	133
Ethics and integrity		
102-16	Values, principles, standards, and norms of behavior	132
Governance		
102-18	Governance structure	128
Stakeholder engagement		
102-40	List of stakeholder groups	31
102-41	Collective bargaining agreements	77, 79
102-42	Identifying and selecting stakeholders	31

GRI 102: General Disclosures

Referred to latest version 2020
(GRI 306 Referred to latest version 2020, GRI 303 and GRI 403 Referred to latest version 2018, others referred to version 2016)

GRI Standard	Disclosure	Page Number & Response	
	102-43	Approach to stakeholder engagement	31
	102-44	Key topics and concerns raised	31, 44, 51
Reporting Practice			
	102-45	Entities included in the consolidated financial statements	5
	102-46	Defining report content and topic Boundaries	25
	102-47	List of material topics	25
	102-48	Restatements of information	No restatement
	102-49	Changes in reporting	No change
	102-50	Reporting period	5
	102-51	Date of most recent report	5
	102-52	Reporting cycle	5
	102-53	Contact point for questions regarding the report	5
	102-54	Claims of reporting in accordance with the GRI Standards	5
	102-55	GRI content index	154
	102-56	External assurance	5
Material Topics			
Economic			
GRI 103: Management Approach	103-1	Explanation of the material topic and its Boundary	25, 42, 66, 84, 92, 116, 132
	103-2	The management approach and its components	42, 66, 84, 92, 116, 132
	103-3	Evaluation of the management approach	42, 66, 84, 92, 116, 132
GRI 201: Economic Performance	201-1	Direct economic value generated and distributed	124, 130
	201-2	Financial implications and other risks and opportunities due to climate change	98
	201-3	Defined benefit plan obligations and other retirement plans	77
	201-4	Financial assistance received from government	No major financial assistance



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- [GRI Content Index](#)
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

GRI Standard	Disclosure		Page Number & Response
GRI 202: Market Presence	202-2	Proportion of senior management hired from the local community	71
GRI 204: Procurement Practices	204-1	Proportion of spending on local suppliers	87
GRI 205: Anti-corruption	205-2	Communication and training about anti-corruption policies and procedures	132
	205-3	Confirmed incidents of corruption and actions taken	No such as things happened
GRI 206: Anti-competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	59, 61
Environmental			
GRI 103: Management Approach	103-1	Explanation of the material topic and its Boundary	25, 84, 92
	103-2	The management approach and its components	84, 92
	103-3	Evaluation of the management approach	84, 92
GRI 301: Materials	301-1	Materials used by weight or volume	103
GRI 302: Energy	302-1	Energy consumption within the organization	110
	302-2	Energy consumption outside of the organization	110
	302-3	Energy intensity	111
	302-4	Reduction of energy consumption	110
	302-5	Reductions in energy requirements of products and services	110
GRI 303: Water and Effluents (2018)	303-1	Water withdrawal by source	104
	303-2	Management of water discharge-related impacts	103
	303-3	Water withdrawal	103
	303-4	Water discharge	103
	303-5	Water consumption	103
GRI 305: Emissions	305-1	Direct (Scope 1) GHG emissions	110
	305-2	Energy indirect (Scope 2) GHG emissions	110

GRI Standard	Disclosure		Page Number & Response
GRI 305: Emissions	305-3	Other indirect (Scope 3) GHG emissions	110
	305-4	GHG emissions intensity	111
	305-5	Reduction of GHG emissions	110
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	105
GRI 306: Waste (2020)	306-2	Waste by type and disposal method	106
	306-3	Significant spills	No significant spills
GRI 307: Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	No such as things happened
GRI 308: Supplier Environmental Assessment	308-2	Negative environmental impacts in the supply chain and actions taken	87
Social			
GRI 103: Management Approach	103-1	Explanation of the material topic and its Boundary	42, 66, 84, 116, 132
	103-2	The management approach and its components	42, 66, 84, 116
	103-3	Evaluation of the management approach	42, 66, 84, 116
GRI 401: Employment	401-1	New employee hires and employee turnover	71
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	77
	401-3	Parental leave	77
GRI 402: Labor/ Management Relations	402-1	Minimum notice periods regarding operational changes	77
GRI 403: Occupational Health and Safety (2018)	403-1	Occupational health and safety management system	81
	403-2	Hazard identification, risk assessment, and incident investigation	81
	403-9	Work-related injuries	81
	403-10	Work-related ill health	81



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- [GRI Content Index](#)
- [The United Nations Global Compact Comparison Table](#)
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

GRI Standard	Disclosure		Page Number & Response
GRI 404 Training and Education	404-1	Average hours of training per year per employee	75
	404-2	Programs for upgrading employee skills and transition assistance programs	48, 75
GRI 405: Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees	71
	405-2	Ratio of basic salary and remuneration of women to men	77
GRI 406: Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	67
GRI 407: Freedom of Association and Collective Bargaining	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	87
GRI 408: Child Labor	408-1	Operations and suppliers at significant risk for incidents of child labor	No such as things happened
GRI 409: Forced or Compulsory Labor	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	No such as things happened
GRI 412: Human Rights Assessment	412-1	Operations that have been subject to human rights reviews or impact assessments	67, 143
	412-2	Employee training on human rights policies or procedures	132
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	No such as things happened
GRI 414: Supplier Social Assessment	414-2	Negative social impacts in the supply chain and actions taken	87
GRI 415: Public Policy	415-1	Political contributions	No such as things happened
GRI 418: Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	59, 61

The United Nations Global Compact Comparison Table

Category	The Ten Principles of the UN Global Compact	Corresponding Section	Page Number
Human Rights	Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights	2-2-1 Human Rights Management Framework	67-68
	Principle 2: Make sure that they are not complicit in human rights abuses	3-3 Regulatory Compliance 2-3-2 Sustainable Supply Chain	132 87
Labor	Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	2-2-1 Human Rights Management Framework	67-68
	Principle 4: The elimination of all forms of forced and compulsory labor	2-2-1 Human Rights Management Framework	67-68
	Principle 5: The effective abolition of child labor	2-2-1 Human Rights Management Framework	67-68
	Principle 6: The elimination of discrimination in respect of employment and occupation.	2-2-1 Human Rights Management Framework	67-68
Environment	Principle 7: Businesses should support a precautionary approach to environmental challenges	2-4-2 Climate Change Mitigation and Adaptation	99-102
	Principle 8: Undertake initiatives to promote greater environmental responsibility	2-4-1 Governance of Environmental Sustainability	94-99
	Principle 9: Encourage the development and diffusion of environmentally friendly technologies.	2-4-3 Achievements in Environmental Sustainability	103-114
Anti-Corruption	Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery	3-3 Regulatory Compliance	132

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- [The Sustainability Accounting Standards Board \(SASB\) Table](#)
- Independent Limited Assurance Report

The Sustainability Accounting Standards Board (SASB) Table

Airlines Sustainability Accounting Standard

Topic	Accounting Metric	Unit of Measure	Category	Code	Data	Corresponding Section	Page Number
Greenhouse Gas Emissions	Gross global Scope 1 emissions	Metric tons (t) CO ₂ e	Quantitative	TR-AL-110a.1	5,878,428	2-4 Environment	94
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	NA	Discussion and Analysis	TR-AL-110a.2	NA	2-4 Environment	94-99
	(1) Total fuel consumed (2) Percentage alternative (3) Percentage sustainable	Gigajoules (GJ) Percentage (%)	Quantitative	TR-AL-110a.3	(1) 799.71 (GJ) (2) 0 (%) (3) 4.15e-4 (%)	2-4 Environment	111 152 152
Labor Practices	Percentage of active workforce covered under collective bargaining agreements	Percentage (%)	Quantitative	TR-AL-310a.1	99.41%	2-2-4 Employee Rights	80
	(1) Number of work stoppages (2) Total days idle	Number days idle	Quantitative	TR-AL-310a.2	0	2-2-4 Employee Rights	79
Competitive Behavior	Total amount of monetary losses as a result of legal proceedings associated with anticompetitive behavior regulations	Reporting currency	Quantitative	TR-AL-520a.1	0	3-3 Regulatory Compliance	132
Accident & Safety Management	Description of implementation and outcomes of a Safety Management System	NA	Discussion and Analysis	TR-AL-540a.1	NA	2-1-1 Flight Safety	44-50
	Number of aviation accidents	Number	Quantitative	TR-AL-540a.2	0	2-1 Trust	44
	Number of governmental enforcement actions of aviation safety regulations	Number	Quantitative	TR-AL-540a.3	0	2-1 Trust	44
Activity Metrics	Available seat kilometers (ASK)	ASK	Quantitative	TR-AL-000.A	4,565,211,510	3-2 Operational Achievements	131
	Passenger load factor	Rate	Quantitative	TR-AL-000.B	24.2%	3-2 Operational Achievements	131
	Revenue passenger kilometers (RPK)	RPK	Quantitative	TR-AL-000.C	1,103,659,304	3-2 Operational Achievements	131
	Revenue ton kilometers (RTK)	RTK	Quantitative	TR-AL-000.D	7,603,579,502	3-2 Operational Achievements	131
	Number of departures	Number	Quantitative	TR-AL-000.E	60,531	3-2 Operational Achievements	131
	Average age of fleet	Years	Quantitative	TR-AL-000.F	Average age of aircrafts: 10.1 years -Passenger aircrafts: 8.3 years -Freighter aircrafts: 15.3 years	Preface Business Overview	8

Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

Independent Limited Assurance Report



安侯建業聯合會計師事務所

KPMG

台北市110615信義路5段7號68樓(台北101大樓)
88F., TAIPEI 101 TOWER, No. 7, Sec. 5,
Xinyi Road, Taipei City 110615, Taiwan (R.O.C.)

Telephone 電話 + 886 2 8101 6666
Fax 傳真 + 886 2 8101 6667
Internet 網址 home.kpmg/tw

Independent Limited Assurance Report

To China Airlines Ltd.:

We were engaged by China Airlines Ltd. ("CAL") to provide limited assurance over the selected information attached as Appendix I ("the Underlying Subject Matter") on the 2021 Corporate Sustainability Report of CAL ("the Report") for the year ended December 31, 2021.

Reporting Criteria of the Underlying Subject Matter

CAL shall prepare the Underlying Subject Matter and reporting criteria in accordance with the Core Option of Global Reporting Initiative Standards ("GRI Standards") issued by Global Sustainability Standards Board as set forth in Appendix I.

Management's Responsibility for the Report

CAL is responsible for determining its objectives with respect to sustainable development performance and reporting, including the identification of stakeholders and material aspects, and using the reporting criteria to fairly prepare and present the Underlying Subject Matter. CAL is also responsible for establishing and maintaining internal controls relevant to the preparation and presentation of the Underlying Subject Matter that is free from material misstatement, whether due to fraud or error.

Our Responsibilities

We performed our work in accordance with International Standard on Assurance Engagements (ISAE) 3000: "Assurance Engagement other than Audits or Reviews of Historical Financial Information" issued by the International Auditing and Assurance Standards Board and to issue a limited assurance conclusion on whether the Underlying Subject Matter is free from material misstatement. The work performed in a limited assurance engagement varies in nature and timing from, and is less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Independence, Professional Standards and Quality Control

We have complied with the independence and other ethical requirements of the Code of Professional Ethics for Certified Public Accountant in the Republic of China, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behavior. In addition, we applied Statements of Auditing Standard No. 46 – "Quality Control for Public Accounting Firms" in the Republic of China. Accordingly, we maintained a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements and professional standards as well as applicable legal and regulatory requirements.

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KPMG, a Taiwan partnership and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee.



Summary of Work Performed

As stated in reporting criteria of the Underlying Subject Matter paragraph, our main work on the selected information included:

- Reviewing the Report of CAL;
- Inquiries with responsible management level and non-management level personnel to understand the operational processes and information systems used to collect and process the Underlying Subject Matter.
- On the basis of the understanding obtained from the above matters, perform analytical procedures on the Underlying Subject Matter and if necessary, inspect related documents to gather sufficient and appropriate evidence for a limited assurance engagement.

The work described above based on professional judgment and consideration of the level of assurance and our assessment of the risk of material misstatement of the Underlying Subject Matter, whether due to fraud or error. We believe that the work performed and evidence we have obtained are sufficient and appropriate to provide a basis of our conclusion.

Inherent limitations

The Report for the year ended 2021 includes the disclosures of non-financial information that involved significant judgments, assumptions and interpretations by the management of CAL. Therefore, the different stakeholders may have different interpretations of such information.

Conclusion

Based on the work we have performed and the evidence we have obtained, as described above, nothing has come to our attention that causes us to believe that the Underlying Subject Matter has not been properly prepared, in all material aspects, in accordance with the reporting criteria.

Other Matters

The management of CAL is responsible for the maintenance of its website where includes the Limited Assurance Report, we shall not be responsible for any further changes on the Underlying Subject Matter or its applicable reporting criteria, nor be responsible for reconducting any assurance work after the issuance date of the Limited Assurance Report.

Taipei, Taiwan (Republic of China)
Jun 10, 2022

Notes to reader

The limited assurance report and the accompanying selected information are the English translation of the Chinese version prepared and used in the Republic of China. If there is any conflict between, or any difference in the interpretation of, the English and Chinese language limited assurance report and the selected information, the Chinese version shall prevail.

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Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

No.	Complying Section	Substantive Information	GRI Standards
Appendix 1: Summary of the Substantive Information			
1	2.3-4 Employee Rights Labor Issues (P.79-80)	<ul style="list-style-type: none"> Union Participation Rate of CAL: <ul style="list-style-type: none"> Number of participants: 0.52% Participation rate: 98.41% Union Participation Rate of Mandarin Airlines: <ul style="list-style-type: none"> Number of participants: 797 Participation rate: 98.75% The subjective bargaining coverage rate of CAL + Mandarin Airlines is equal to the other most participation rate. 	GRI Standards 102-41 Collective Bargaining System
2	Appendix Customer Satisfaction Table in 2021 (P.142)	<ul style="list-style-type: none"> Passenger Satisfaction: 90.7% Freight Customer Satisfaction: 93.9% Member Customer Satisfaction: 8.24 (Note: The full score is 10) 	GRI Standards 102-44 Key rights and customer interest customer satisfaction
3	2.3-2 Sustainable Supply Chain Management Local Procurement (P.77-82)	<ul style="list-style-type: none"> Except for certain aviation equipment, parts, and operations like air subject to international standards, CAL has managed its water parts from local suppliers (Taiwan, Pacific, Korea, and others) to support the local economy. For instance, we use local agricultural products from Taiwan for the restaurant dishes for business class passengers, it reduces the carbon footprint and also helps protect the environment. The value of local procurement in 2021 rose by 32.2% compared to 2020 and the percentage of local procurement reached 98%. CAL has continued committed to local procurement despite the impact of the pandemic. Absent of Local Procurement in 2021: TWD 360.22 Million / 94.01% Number of Local Suppliers in 2021: 380 / 98.97% CAL shares its corporate culture and values through the formation of several regulations and codes of conduct that emphasize business integrity. To establish sound corporate governance as the business foundation, CAL has set the Code of Corporate Governance, the Board Director Code of Ethical Conduct, Executive Code of Ethical Conduct, the Procedure for Handling Material Issue Information, the Internal Corporate Management Best Practice Principles, and the Procedure for Ethical Management and Guidelines for Conduct. CAL fully complies with related laws and regulations and is committed to an open practice: protecting shareholders' rights and interests, strengthening Board of Directors functions, adhering to regulatory requirements, the Board, adhering, disclosure and transparency of the Board (including avoidance of conflicts of interests), respecting stakeholders' rights and interests, and adhering to administrative transparency. In accordance with Article 17 of the Procedures for Ethical Management and Guidelines for Conduct, CAL has a publically disclosed source and has never provided political donations. In addition, the Board of Directors Code of Ethical Conduct (17) division have avoided source or corporate social responsibility and the Board of Directors Code of Conduct have been formulated to ensure that the Board of Directors and employees behave ethically and comply with anti-corruption laws. In 2021, CAL launched a three-year anticorruption training. 	GRI Standards 201-1 Proportion of spending on local suppliers
4	2.3-2 Sustainable Supply Chain Management Local Procurement (P.77-82)	<ul style="list-style-type: none"> CAL shares its corporate culture and values through the formation of several regulations and codes of conduct that emphasize business integrity. To establish sound corporate governance as the business foundation, CAL has set the Code of Corporate Governance, the Board Director Code of Ethical Conduct, Executive Code of Ethical Conduct, the Procedure for Handling Material Issue Information, the Internal Corporate Management Best Practice Principles, and the Procedure for Ethical Management and Guidelines for Conduct. CAL fully complies with related laws and regulations and is committed to an open practice: protecting shareholders' rights and interests, strengthening Board of Directors functions, adhering to regulatory requirements, the Board, adhering, disclosure and transparency of the Board (including avoidance of conflicts of interests), respecting stakeholders' rights and interests, and adhering to administrative transparency. In accordance with Article 17 of the Procedures for Ethical Management and Guidelines for Conduct, CAL has a publically disclosed source and has never provided political donations. In addition, the Board of Directors Code of Ethical Conduct (17) division have avoided source or corporate social responsibility and the Board of Directors Code of Conduct have been formulated to ensure that the Board of Directors and employees behave ethically and comply with anti-corruption laws. In 2021, CAL launched a three-year anticorruption training. 	GRI Standards 201-2 Communication and training about anti-corruption practices and procedures

No.	Complying Section	Substantive Information	GRI Standards
5	2-4-3 Administration in Environmental Sustainability Use of Water Resources (P.109-110)	<ul style="list-style-type: none"> Water Storage Level: Located in Taichung City with high water resource risks Water supply with: Taiwan Water Corporation Water Withdrawal (Tap water): 75.63 thousand tons Water Withdrawal (Seawater): 5.83 thousand tons EM3 (Storage Level): Located in Taichung City with high water resource risks Water supply with: Taiwan Water Corporation Water Withdrawal (Tap water): 65.7 thousand tons Water Withdrawal (Seawater): 4.76 thousand tons EM3 (Storage Level): Located in Taipei City with low water resource risks Water supply with: Taipei Water Department Water Withdrawal (Tap water): 4.76 thousand tons EM3 (Storage Level): Located in Taipei City with low water resource risks Water supply with: Taipei Water Department Water Withdrawal (Tap water): 9.79 thousand tons Total Water Withdrawal: 113.42 thousand tons The corporate water conservation coverage and industrial wastewater treatment is provided by the Taiwan Airport Storage Treatment Plant while the latter is provided by the two wastewater treatment plants in the EM3 Plant due to the nature of the operations. The treatment plants provide organic and offshore wastewater treatment (industrial wastewater) with 100% efficiency. The plants regularly inspected to ensure that the government water-related regulations of the Environmental Protection Administration. CAL Park: <ul style="list-style-type: none"> (1) Water Storage Level: Located in Taipei City with low water resource risks Water supply with: Taipei Water Department Water Withdrawal (Tap water): 113.42 thousand tons 	GRI Standards 303-1 Water Withdrawal
6	2-4-3 Administration in Environmental Sustainability Use of Water Resources (P.109-110)	<ul style="list-style-type: none"> CAL Park: <ul style="list-style-type: none"> (1) Water Storage Level: Located in Taipei City with low water resource risks Water supply with: Taipei Water Department Water Withdrawal (Tap water): 113.42 thousand tons 	GRI Standards 303-4 Water Discharge

No.	Complying Section	Substantive Information	GRI Standards
7	2-4-3 Administration in Environmental Sustainability Air Quality (P.110-111)	<ul style="list-style-type: none"> Waste processing and (EM3): <ul style="list-style-type: none"> Domestic waste: Taiwan Airport Storage Treatment Plant (industrial wastewater) (1) Effluent rate: Tamsui River (flow with Category C: untreated surface water) (2) Effluent standard: pH: 6-9 / COD: <100 mg/L / BOD: <100 mg/L / SS: <100 mg/L (3) Water Discharge: 18.75 thousand tons EM3 (Storage & Maintenance Operational Park): <ul style="list-style-type: none"> Water Storage Level: Located in Taipei City with low water resource risks Domestic waste: Taiwan Airport Storage Treatment Plant (industrial wastewater) Industrial wastewater: CAL's first and second wastewater treatment plants (industrial wastewater) (1) Effluent rate: Tamsui River (flow with Category C: untreated surface water) (2) Effluent standard: <ul style="list-style-type: none"> Domestic waste: pH: 6-9 / COD: <100 mg/L / BOD: <100 mg/L / SS: <100 mg/L Industrial wastewater: pH: 6-9 / COD: <100 mg/L / SS: <100 mg/L / Calcium: <100 mg/L / Total chlorine: <10 mg/L (3) Water Discharge: <ul style="list-style-type: none"> Domestic: 12.29 thousand tons Industrial: 16.94 thousand tons Taipei Research and Logistics Office: <ul style="list-style-type: none"> Water Storage Level: Located in Taipei City with low water resource risks Domestic waste: (EM3) Taiwan Airport Storage Treatment Plant (industrial wastewater) (1) Effluent rate: Tamsui River (flow with Category D: untreated surface water) (2) Effluent standard: <ul style="list-style-type: none"> Domestic: pH: 6-9 / COD: <100 mg/L / BOD: <100 mg/L / SS: <100 mg/L Industrial: 14.94 thousand tons (3) Water Discharge: <ul style="list-style-type: none"> Taipei Research: 2.14 thousand tons Logistics Office: 3.46 thousand tons Total Water Discharge: 18.79 thousand tons SO₂ and NO_x Emission of CAL Group in 2021: <ul style="list-style-type: none"> CAL: <ul style="list-style-type: none"> (1) Passenger Aircraft: <ul style="list-style-type: none"> SO₂ Emission: 27.42 Tons NO_x Emission: 281.99 Tons NO₂ Emission: 10.92 Tons (2) Cargo Aircraft: <ul style="list-style-type: none"> NO₂ Emission: 18.08 Tons 	GRI Standards 303-2 Air emissions (CO ₂ , CH ₄ , and other significant air pollutants)

No.	Complying Section	Substantive Information	GRI Standards
8	2-4-3 Administration in Environmental Sustainability Waste Management (P.111)	<ul style="list-style-type: none"> Waste Management in 2021: <ul style="list-style-type: none"> General Domestic Waste: <ul style="list-style-type: none"> Increase for waste generation: 99 Tons Reduced to in accordance with regulations with incineration with energy recovery (waste-to-energy generation): 453 Tons Waste recycling: 809 Tons Waste-to-energy: 453 Tons Compost / long-lasting: 34 Tons Increase for waste generation in accordance with government requirements: 386 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Waste Management in 2021: <ul style="list-style-type: none"> General Domestic Waste: <ul style="list-style-type: none"> Increase for waste generation: 99 Tons Reduced to in accordance with regulations with incineration with energy recovery (waste-to-energy generation): 453 Tons Waste recycling: 809 Tons Waste-to-energy: 453 Tons Compost / long-lasting: 34 Tons Increase for waste generation in accordance with government requirements: 386 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons 	GRI Standards 307-2 Waste disposed to landfill
9	2-5-2 Sustainable Supply Chain (P.83-85)	<ul style="list-style-type: none"> Waste Management in 2021: <ul style="list-style-type: none"> General Domestic Waste: <ul style="list-style-type: none"> Increase for waste generation: 99 Tons Reduced to in accordance with regulations with incineration with energy recovery (waste-to-energy generation): 453 Tons Waste recycling: 809 Tons Waste-to-energy: 453 Tons Compost / long-lasting: 34 Tons Increase for waste generation in accordance with government requirements: 386 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Waste Management in 2021: <ul style="list-style-type: none"> General Domestic Waste: <ul style="list-style-type: none"> Increase for waste generation: 99 Tons Reduced to in accordance with regulations with incineration with energy recovery (waste-to-energy generation): 453 Tons Waste recycling: 809 Tons Waste-to-energy: 453 Tons Compost / long-lasting: 34 Tons Increase for waste generation in accordance with government requirements: 386 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: <ul style="list-style-type: none"> Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons Recycling of Recycled Industrial Waste: 188 Tons 	GRI Standards 308-2 Negative environmental impacts of the supply chain and adverse labor

No.	Complying Section	Substantive Information	GRI Standards
10	Appendix Human Resources of	<ul style="list-style-type: none"> Environment refers to environmental protection. "Safety" includes labor rights and labor conditions, and occupational safety and health. "Security" includes equity and safety and information security. 2021 Risk factors of Supply Chain Sustainability: <ul style="list-style-type: none"> Governance: 94.87 Environment: 76.18 Safety: 83.10 General: 93.13 Overall Performance of Supply Chain Sustainability: <ul style="list-style-type: none"> In 2021, the score of supply chain sustainability risk assessment was 84.17 points. Governance: The score (94.87) was an increase compared to the previous year (93.02) and has the highest score overall. It shows that critical suppliers generally have excellent management mechanisms. Environment: The score (76.18) was a decrease compared to the previous year (81.01). CAL will continue to work hard to improve the risk assessment and regularly review suppliers to ensure that they have set up quality management and information security systems. Safety: Although the score (83.10) was an improvement compared to the previous year (80.36), there remains scope for improvement. This score will still be the focus of our support for suppliers. General: The score (93.13) was higher compared to the previous year (91.44), and the second highest score overall. We will continue to improve and regularly review suppliers to ensure that they have set up quality management and information security systems. Improvement Action: <ul style="list-style-type: none"> CAL will continuously assess the risks to its suppliers using S&P to review the performance of suppliers in other areas. We will also expand the scope of our survey to include suppliers with high risk with greater resources. With the existing audit system, CAL will work to understand suppliers' real problems and provide guidance for them to solve their problems. CAL will also keep strengthening its sustainability development and the impact of the pandemic to suppliers and provide training to enhance supply chain sustainability. Sustainable Supply Chain Audit: <ul style="list-style-type: none"> According to the S&P audit results, there was one critical high-risk supplier in 2021. For 3 critical tier 1 suppliers exhibited high environmental and social risks, 1 critical tier 1 supplier exhibited high environmental risks, and 1 critical tier 1 supplier exhibited high social risks. According to CAL's follow-up audit of the S&P audit for 2021, there was no supplier with critical high-risk. To have a more comprehensive system of sustainable practices of our supply chain, CAL has set up different audit plans for sustainable supply chain management. As of 2021, we have completed audits for 2 critical tier 1 suppliers. CAL's audits are conducted onsite, in person, through, or by correspondence. The method to determine based on the supplier's location, characteristics, and further control measures to improve its performance. The audit results in 2021 showed that suppliers require improvements such as the establishment of an environmental management system, identification and recycling of recyclable waste, monitoring supplier environmental performance, and conducting regular training on environmental management and regulation for employees. After CAL reviewed follow-up and training, half of the 	GRI Standards 201-1 Proportion of spending on local suppliers

No.	Complying Section	Substantive Information	GRI Standards
11	2-5-1 Health and Safety Workplace (P.82)	<ul style="list-style-type: none"> Critical tier 1 suppliers have made significant improvement in environmental management. No critical tier 1 suppliers have maintained the performance in 2021. CAL will continue to enhance support, follow-up, and support for improvements for these environmental and social risks. Work-related injury and health management more efficiently, systematically, and in accordance with local international trends and domestic and foreign standards. CAL has established an independent safety and health management system and enhanced risk control in line with international standards. On April 20, 2019, CAL signed ISO 45001:2018 and ISO 9001:2015 certifications for our safety and health management systems, which align the FSCA model. Through the risk management mechanism, risk classification management is carried out according to each type of operation and job category into the following four categories: <ul style="list-style-type: none"> Category 1: Significant occupational risk. For example, flight crew, cabin crew, cargo loading operations. Category 2: Moderate occupational risk. For example, engineering, maintenance, and equipment support. Category 3: Low occupational risk. For example, office administration. We have completed the set-up of safety and health management on-site job training for each unit, including how to conduct workplace hazard identification, risk classification, how to effectively control the risk of occupational hazard identification process. We also provide guidance to units at all levels on risk assessment to help us prioritize and improve. In addition, according to the five major operational categories of the Occupational Health and Safety Management System and its related implementation, we will effectively control the risk of occupational hazard through regular visits, improve the management of occupational disease prevention, enhance the performance of occupational safety and health management, and implement the environmental safety policy to ensure that employees can work in a safe, healthy, and comfortable work environment. In 2021, a total of 1,271 safety and health inspections were conducted at each work site, and 146 audits were finished. All of which were conducted with the criteria needs for improvement. The overall total of each unit or performed once a year, and the financial audit is continued on Q3 each year. In 2021, the disabling injury frequency rate (FR) was 1.63; the disabling injury severity rate (SR) was 0.2; the frequency-severity indicator (FSI) was 0.23; and the absence rate was 0.71%. According to industry occupational hazard incidents were caused by unsafe employee conduct. However, CAL's FR and SR were lower than the air transport industry average FR 2.36, SR 0.44, and FSI 0.41 from 2018 to 2020. We studied occupational hazard incidents in industry-wide collaborative programs to enhance safety management programs for CAL, work-related, and so occupational hazard incidents returned to normal again in 2021. We will continue to implement the process of occupational hazard prevention and control activities and internal. Occupational Health Services of CAL Group in 2021: <ul style="list-style-type: none"> All Employees: <ul style="list-style-type: none"> Occupational Health Services of CAL Group in 2021: <ul style="list-style-type: none"> All Employees: 	GRI Standards 403-1 Work-related injury

No.	Complying Section	Substantive Information	GRI Standards
12	2-5-2 Sustainable Supply Chain (P.83-85)	<ul style="list-style-type: none"> Key Indicators: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 1 Disabling Injury Frequency Rate: 4.92 Disabling Injury Severity Rate: 0 Incidence Resulting in Work-related Fatalities: 0 The Rate of Fatalities as a Result of Occupational Injury: 0.00 Occupational absence rate: 0.00 The Number of High-consequence Occupational Injuries: 0 The Total Working Hours: 1,077,872 Mandarin Airlines: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 23 Male / 2 Female / 1 Disabling Injury Frequency Rate: 1.23 (Male / 2.44 / Female / 0.08) Disabling Injury Severity Rate: 0.04 (Male / 0.02 / Female / 0) Incidence Resulting in Work-related Fatalities: 0 / Male / 0 / Female / 0 The Rate of Fatalities as a result of Occupational Injury: 0.00 / Male / 0.00 / Female / 0.00 Occupational absence rate: 0.00 The Number of High-consequence Occupational Injuries: 0 / Male / 0 / Female / 0 The Rate of High-consequence Occupational Injuries: 0.00 / Male / 0.00 / Female / 0.00 The Total Working Hours: 1,373,123 (Male: 617,348 / Female: 4,348,758) Bravo: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 24 Disabling Injury Frequency Rate: 1.83 Disabling Injury Severity Rate: 0 Incidence Resulting in Work-related Fatalities: 0 The Rate of Fatalities as a Result of Occupational Injury: 0.00 Occupational absence rate: 0.00 The Number of High-consequence Occupational Injuries: 0 The Rate of High-consequence Occupational Injuries: 0.00 The Total Working Hours: 1,332,286 Engineering & Maintenance Operation: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 19 Disabling Injury Frequency Rate: 1.28 Disabling Injury Severity Rate: 23 Incidence Resulting in Work-related Fatalities: 0 The Rate of Fatalities as a Result of Occupational Injury: 0.00 Occupational absence rate: 0.00 The Number of High-consequence Occupational Injuries: 0 The Rate of High-consequence Occupational Injuries: 0.00 Absence rate: 1.07% The Total Working Hours: 4,758,262 Taipei: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 0 Disabling Injury Frequency Rate: 0.00 Disabling Injury Severity Rate: 0 Incidence Resulting in Work-related Fatalities: 0 The Rate of Fatalities as a Result of Occupational Injury: 0.00 Occupational absence rate: 0.00 The Number of High-consequence Occupational Injuries: 0 The Rate of High-consequence Occupational Injuries: 0.00 Absence rate: 1.30% The Total Working Hours: 113,036 	GRI Standards 308-2 Negative environmental impacts of the supply chain and adverse labor

No.	Complying Section	Substantive Information	GRI Standards
13	2-5-2 Sustainable Supply Chain (P.83-85)	<ul style="list-style-type: none"> Key Indicators: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 33 / Male / 22 / Female / 10 Disabling Injury Frequency Rate: 1.63 (Male: 2.1 / Female: 1.28) Disabling Injury Severity Rate: 0.2 (Male / 0.15 / Female / 0.1) Incidence Resulting in Work-related Fatalities: 0 / Male / 0 / Female / 0 The Rate of Fatalities as a result of Occupational Injury: 0.00 / Male / 0.00 / Female / 0.00 Absence Rate: 0.71% (Male: 0.66% / Female: 0.80%) The Number of High-consequence Occupational Injuries: 0 / Male / 0 / Female / 0 The Rate of High-consequence Occupational Injuries: 0.00 / Male / 0.00 / Female / 0.00 The Total Working Hours: 1,373,123 (Male: 617,348 / Female: 4,348,758) Bravo: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 24 Disabling Injury Frequency Rate: 1.83 Disabling Injury Severity Rate: 0 Incidence Resulting in Work-related Fatalities: 0 The Rate of Fatalities as a Result of Occupational Injury: 0.00 Occupational absence rate: 0.00 The Number of High-consequence Occupational Injuries: 0 The Rate of High-consequence Occupational Injuries: 0.00 The Total Working Hours: 1,332,286 Engineering & Maintenance Operation: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 19 Disabling Injury Frequency Rate: 1.28 Disabling Injury Severity Rate: 23 Incidence Resulting in Work-related Fatalities: 0 The Rate of Fatalities as a Result of Occupational Injury: 0.00 Occupational absence rate: 0.00 The Number of High-consequence Occupational Injuries: 0 The Rate of High-consequence Occupational Injuries: 0.00 Absence rate: 1.07% The Total Working Hours: 4,758,262 Taipei: <ul style="list-style-type: none"> The Number of Sustainable Occupational Injuries: 0 Disabling Injury Frequency Rate: 0.00 Disabling Injury Severity Rate: 0 Incidence Resulting in Work-related Fatalities: 0 The Rate of Fatalities as a Result of Occupational Injury: 0.00 Occupational absence rate: 0.00 The Number of High-consequence Occupational Injuries: 0 The Rate of High-consequence Occupational Injuries: 0.00 Absence rate: 1.30% The Total Working Hours: 113,036 	GRI Standards 308-2 Negative environmental impacts of the supply chain and adverse labor



Contents

Preface

1 Sustainability Management

2 Value Creation

3 Corporate Governance

ESG Data and Appendix

- Financial Performance
- Customer Satisfaction Table in 2021
- Management of Material Human Rights Issues in 2021
- Relevant Data Statistics of Human Resources
- Environmental Performance
- GRI Content Index
- The United Nations Global Compact Comparison Table
- The Sustainability Accounting Standards Board (SASB) Table
- Independent Limited Assurance Report

No.	Corresponding Section	Substantive Information	GRI Standards
2-1-1	Flight Safety, Flight Crew Management (P.46)	<p>• CAIL differentiates risk factors and implements risk management mechanisms based on the three perspectives of "Physical", "Psychical", and "Psychic" through complete internal and external environmental change response meetings, such as training for new airports, routes, aircraft, systems, protocol procedures, systematic flight training / qualifications, flight operations quality assurance (FOQA), and periodic appraisal of routes / equipment, pilots who graduate from our training programs are highly professional, reliable, and fully capable of subsequent overseas routes.</p> <p>• Intensive Training and Objective Testing In order to implement our commitment of flight safety with a surge of demand for flight crew on the global market and ensure that flight crew meeting most stringent requirements and objective test, CAIL strictly requires our flight crew to complete training first. To meet strict flight training, they must pass the training for new aircraft models, expanded marking, and switching between aircraft types. Cabin pilots must complete at least 10 months of training programs or well-known flight training schools in the United States of America.</p> <p>CAIL has introduced simulator-based training (SBT) to reduce individual resource training and cost. The SBT is guided by risk and error management, utilizing big data collection and analysis to enhance the ability of handling abnormal situations by individual behavior. Real performance, operation case, and historical record of events etc. Since January 1, 2019, CAIL has implemented annual "Flight Crew CBT" (cabin crew training and fitness test) and achieved 100% EBT for a total of 1,129 flight crew in 2021.</p> <p>• Professional Training Facilities As the first airline to introduce civil flight simulators in Taiwan, CAIL is equipped with various types of simulators for flight training. In addition to simulating various adverse weather conditions, operations are incorporated a variety of contingencies for common simulation training. We can also display the tolerance limits of aircraft design and control training in any possible extreme and dangerous situations without incurring any risk in the process. The training process can also be recorded as a basis for review and improvement for flight staff and expertise.</p> <p>CAIL's flight simulators and ground / water rescue training facilities have been certified by International aviation administrations. The flight simulators are available for domestic and international training. CAIL will continuously invest in and upgrade training equipment to meet flight safety.</p> <p>• A Comprehensive Management System The Integrated Flight Training System (IFTS) was since 2016 to comprehensively E-training records and integrate training course information in 2021, 193 CAIL flight crew have participated in a variety of short- and long-term training courses. CAIL also completed the system connection and integration for IFTS with the new crew scheduling system (L2020) introduced in 2019 to assist the effective management and use of training resources.</p>	GRI Standards 404-1 Programs for improving employee skills and retention programs
2-2-1	Employee Development (P.70)	<p>• Strengthen Passenger Services Cabin crew service training: Strengthen operation safety and passenger service skills during the pandemic (Training Investment: around TWD 1.02 million).</p>	

No.	Corresponding Section	Substantive Information	GRI Standards
2-2-4	Employee Rights (P.76)	<p>(1) Business Benefits • Improve operational safety and service quality to increase passenger satisfaction and willingness to fly with us again (2) Quantitative Impact of Business Benefits • Increased cabin crew satisfaction rate by 2.8% in 2021 compared to 2020 (3) Proportion of Total Employees Participation in the Program : 34.0%</p> <p>• Training for Increasing Cargo Revenue • Strengthen cargo operation personnel's related cargo support professional knowledge • Increase the number of flight crew members for cargo aircraft (Training Investment: around TWD 40.52 million)</p> <p>(1) Business Benefits • Enhance cargo handling effectiveness and fleet capacity to increase revenue from cargo aircraft (2) Quantitative Impact of Business Benefits • Cargo aircraft revenue for 2021 increased by TWD 12,361 billion compared to 2020 (3) Proportion of Total Employees Participation in the Program : 1.2%</p> <p>• Retiree Fund (Retiree Association) CAIL has assisted its retirees and employees in establishing a global retiree association and the CAIL Retiree Fund. Every year, the Retiree Association organizes quarterly activities to promote interchange between retirees. CAIL also offers grants to the Retiree Association to provide positive assistance and encouragement.</p>	



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