About Us

Reliability Guarantee
The Board of Directors and all directors of the Company undertake that there are no false records, misleading statements or major omissions in the contents of this report and are responsible for the authenticity, accuracy and completeness of its contents.

Report Time Frame
The reporting time range is from January 1 to December 31, 2021 and has been appropriately extended to enhance the comparability of the report. This report is published concurrently with the Annual Report, which was published in March 2021.

Reporting Boundaries
The disclosure boundary of the data indicators in this report is mainly based on China Southern Airlines Co., Ltd., and individual indicators are extended to China Southern Airlines Group Co., Ltd. The scope of data disclosure has been specified in the report. There are no significant changes in the organization size, structure, ownership or supply chain during the reporting period.

Data Statement
The financial data in this report comes from the audited annual report of China Southern and other data comes from the public data of government departments, official documents of the Company and relevant statistics. This report collects data based on the quantitative Corporate Social Responsibility indicator system that conforms to the characteristics of China Southern Airlines.

The financial data in this report is in RMB unless otherwise stated.

Compilation Basis

Hong Kong Stock Exchange Environmental, Social and Governance Reporting Guidelines (HK-ESG)
Guidelines for the preparation of the “Report on Corporate Social Responsibility” issued by the Shanghai Stock Exchange
Chinese Academy of Social Sciences “Guidelines for Compilation of Corporate Social Responsibility Reports in China” (CASS-CB4.0)

Appellation Description
For the convenience of expression and reading, “China Southern Airlines Co., Ltd.” is also represented by “China Southern” or “Company”; “China Southern Group Co., Ltd.” is also represented by “China Southern Group” or “Group”; “Xiamen Airlines Co., Ltd.” is also represented by “Xiamen Airlines”; local branches are represented by “region name + branch company” and “Civil Aviation Administration of China” is also represented by “Civil Aviation Administration.”

Report Acquisition
This report includes both Chinese and English versions and is published in both paper and electronic formats. You may log in to the official website of China Southern Airlines to browse or download this report online.

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Set Sail on a New Journey - Flying Safely into the Future

This report is the 15th Corporate Social Responsibility report issued by China Southern Airlines Co., Ltd. It presents the Company's practice and achievements in the fields of economics, environment and Corporate Social Responsibility. We look forward to your learning more about China Southern Airlines through this report.
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During Year 2021, in the face of the complex and severe situation created by the COVID-19 global pandemic, China Southern adhered to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and resolutely implemented the requirements of the Central Government and superiors, staying true to its original mission.

China Southern began this new “normal” situation of COVID-19 with practical work and made overall plans for pandemic preventive and control measures as well as safe production and operation, reform and promoting various work of party building, fully fulfilled political, economic and social responsibilities, and practiced “airline of the people and for the people” with practical actions.

We took solid and meticulous prevention and control measures to push down the impact of COVID-19. We participated in the international air transport coalition as well as safe production and operation, reform and promoting various work of party building, fully fulfilled political, economic and social responsibilities, and practiced “airline of the people and for the people” with practical actions.

In terms of flight operations, we fully responded to the severe impact of the COVID-19 pandemic, improved operational revenue, reduced costs and revitalized resources; regarding flight operations, a special campaign to improve flight regularity was carried out and an on-time departure rate reached a strong 89.88%, 1.9 percentage points higher than the industry average.

In terms of service, we built a new service brand “Effort and Refinement”, strengthened service management and control and all service indicators were listed in the forefront of China’s domestic airlines. Strategically, the overall idea of high-quality development has been barreled. The 4th Five-Year Plan has been formulated. Digital transformation has been accelerated. Five major structural adjustments have been implemented; China Southern’s ecosystem has been built, and various strategic tasks have been steadily advanced. In terms of reform, more than 70% of the three-year reform action tasks have been exceeded and the vitality of development momentum has been further enhanced.

We fully fulfilled the Corporate Social Responsibilities of central enterprises and achieved “three boosts”. The first was to boost the national strategy, promoting the high-quality development of our Beijing at Beijing Daxing International Airport hub; promoted the “four integrations” of the Greater Bay Area market, products, services and networks and accelerated the implementation of projects such as cross-border e-commerce, general aviation and aircraft leasing at the Hainan Free Trade Port. The second was to boost rural revitalization, involving 17.26 million in assistance funds and implementing 40 new projects in the rural revitalization stage throughout the year. We donated five million to purchase 1,617 television sets that were given to disadvantaged residents of Mohe and Hulan counties in the Hotan area of Xinjiang, the designated aid targets, and invested 52 million to construct the Xinjiang Mohe H培训班 Primary School. The total amount of consumer assistance exceeded 60.32 million. The third was to promote green development, carrying out a streamlined digital energy conservation and emission reduction program that reduced carbon emissions by 22,110 tons, guiding passengers to our all-new On Demand Dining in-flight meal, which saved more than 3.71 million meals and earned the “Annual Environmental Protection Airline” Golden Boy Champion Award, “Carbon Neutral Case” and other honors.

We focused on people’s livelihood projects and conducted “three services” very well. In the study of party history, the “1-13 practical things for the masses” activity was carried out, 21 new key controlled projects were announced, and secondary units launched more than 600 key livelihood projects, meeting the people’s “urgent and long-awaited” challenges; one is to serve the public. We fully put the safety of people’s lives and livelihood projects first. In April 2021, in order to rescue a Ugghur boy with a broken arm, China Southern airport officials instructed the flight to return to the departure gate to open the cabin door a second time to meet the child (and her parents) in the cabin and still maintained an on-time departure rate so the young child could meet the awaiting ambulance and receive needed treatment in time. In June, a shipment of lychees from Guangdong was blocked due to the COVID-19 pandemic. China Southern urgently deployed 320 flights, carrying more than 7,200 tons of lychees, opening up an air passage for Guangdong lychees to leave the province and in doing so earned a special contribution award of “10 practical things for farmers who grow lychees” by Guangdong Province. The second was to serve our traveling passengers. We securely care for our special passenger groups, and we have opened service windows for our senior travelers at 66 directly affiliated ticket offices and 30 airports, and launched the “one-network interconnection” function for over a million passengers. The arrival time of flight delay compensation has been shortened to less than two minutes, and the entire process of domestic passenger tickets has now been automated. Our baggage transportation error rate dropped by 15.7% year-on-year. The third is to honor and respect the more than 100,000 employees and managers who work for China Southern Airlines. We optimized and adjusted the standard of foodservice for fringe-line positions, popularized supplementary medical insurance policies, provided additional service for families whose both husband and wife are working for China Southern, strengthened the care of quarantined personnel, equipped 900 sets of fitness equipment, and launched nearly 100,000 “specialized quarantine meals” to let employees and the masses experience the special cuisine which was created just for them!
About Us

Company Profile

Headquartered in Guangzhou, China Southern Airlines Co., Ltd. was established in Year 1995, listed on the Hong Kong Stock Exchange and the New York Stock Exchange in 1997 and was listed on the Shanghai Stock Exchange in Year 2003. As the largest airline of the People’s Republic of China, China Southern has 21 branches (including branches in Taiwan and Macau), with 21 domestic sales offices and 53 international sales offices.

China Southern Airlines is proud to operate the largest number of modern aircraft, the most developed route network and the largest annual passenger volume in China. The scope of business services spans domestic, international and regional scheduled and irregular air passenger, cargo, mail and baggage transportation.

In recent years, China Southern has made significant progress in building up its Guangzhou-Beijing dual aviation hubs through newly opened and optimized route networks—while continuously providing passengers with safe and reliable air transportation products and services as it works to become a world-class air transport enterprise.

By the conclusion of Year 2021

Routes operated by China Southern – 1,401 lines

New domestic routes throughout the year – 175 lines

The total transportation turnover was 21.2 billion ton-kilometer

New domestic routes throughout the year – 175 lines

98.50 million passenger traffic

1.44 million ton of cargo and mail

The 4th “China Centralized Supply Chain Leading Enterprises” Award in 2021

Claimed 41st place in “China’s 50 Most Valuable Brand” by World Brand Lab in 2021

Earned the seventh CAPSE Airline Service Award for “Best Airline” and “Innovative Service”

Awarded the highest “Seven-Star Safety Rating” and the title of “COVID-19 Pandemic Prevention Seven Star Airline” by AirTravelTips.com – an internationally renowned independent aviation rating network

China Southern Airlines is proud to operate the largest number of modern aircraft, the most developed route network and the largest annual passenger volume in China.
Company Culture

China Southern’s corporate culture embraces “Sunshine China Southern.” Construction of a world-class air transport enterprise with global competitiveness is both a call to action and ideological guide that all China Southern staff and senior managers put into practice together, which in turn is a special inspiration for all employees to build China Southern into a world-class air transport enterprise with global competitiveness.

Development Strategy

Year 2021 was the first year of the “14th Five-Year Plan.” With the vision and goal focused squarely becoming a major, world-class airline, China Southern remains steadfast in its mission of high-quality development, adheres to five major developments, implements five major strategies, promotes six major actions, realizes six major transformations and formulates the “14th Five-Year” development plan and 19 business sub-plans by actively promoting the implementation of its strategic plan while striving to develop its market-leading high-quality development path.

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During Year 2021, China Southern thoroughly implemented its strategy of serving the nation, serving the coordinated development of the Beijing-Tianjin-Hebei region, and serving the construction of the Xiongan New Area and regarded "comprehensively improving the operational quality of Beijing Daxing International Airport" as one of the seven tough battles. Decisive efforts were made during Year 2021 to build up China Southern’s Beijing hub brand of "Daxing China Southern - China Southern Daxing" as well as "comprehensively improving the operational quality of Beijing Daxing International Airport" which has become a protracted battle that requires long-term investments and in-depth cultivation in the deepening operation stage of the airport’s Beijing hub, which is a challenge faced by all of China Southern Airlines team members and also serves as a comprehensive improvement of all factors such as market, transportation capacity, basic support and mechanism construction.

"Daxing China Southern - China Southern Daxing" is the new brand of China Southern hub construction which has achieved remarkable positive results.

Improving Beijing Daxing International Airport Operational Quality

The opening of the "Beijing-Guangzhou Express" and "Beijing-Shenzhen Express" flight service has become an exciting new, two-core air express business at Beijing Daxing International Airport, which will provide passengers with a convenient and comfortable travel experience. At present, China Southern has carried out nearly 48,000 flights on the routes at Beijing Daxing International Airport. The network spans 47 domestic destinations and the average daily flight volume exceeds 300 to form a new route network radiating outward from Beijing-Tianjin-Hebei and Xiongan New Area to nearly every part of the nation.

Launching Daxing "Multi-point Check-In"

Launched a new "multi-point check-in" at Beijing Daxing International Airport required the addition of self-service kiosks as well as new sales counters to meet the needs of rail transit passengers when making their airport check-in as well as a consignment ticket change booth, itinerary printing and other services… all focused on reducing valued time at multi-point check-in.

Building Daxing Goods Station

Building an aviation hub and "urban cargo terminal" requires the active rights of international airlines and efficiently transporting temperature-controlled pharmaceutical goods as well as actively opening up domestic and international logistics air channels in North China. This dramatically has worked to build up the Daxing Cargo Terminal into an important facility for the coordinated development of Beijing, Tianjin and Hebei. On September 25, 2021, China Southern Beijing Daxing-Vancouver general cargo passenger-to-cargo flight successfully launched its maiden flight, signifying China Southern Daxing Cargo Terminal becoming the only cargo terminal that offers international passenger-to-cargo general cargo transportation at the international port of Beijing Daxing International Airport.

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**Corporate Governance**

China Southern implemented the “Two Consistencies”, strictly implementing a three-year action program for the reform of state-owned enterprises which has as its core the strengthening of party leadership in improving corporate governance.

The Company complied with national laws and regulations while improving its corporate governance systems, articles of association and other governance systems, and reviewed the “Articles of Association” (“Procedure Rules of the Board of Directors”) and formulated corporate governance documents such as the “Administrative Measures for the Authorization of the Board of Directors”, “Procedure Rules for the Chairman’s Office Meeting” and promoted the group and subsidiaries at all levels to formulate a lot of major business management matters that will be studied and discussed in advance by the party organization and clarified the boundaries of rights and responsibilities of each governance body.

The Company comprehensively standardized the governance of the Board of Directors, strengthened the construction of the Board of Directors, implemented the functions and powers of the Board of Directors, promoted the Board of Directors should be fully established, and ensured that external directors in the Board of Directors occupy the majority in principle, ensured that the management performs their powers and duties in accordance with the law, and strive to ensure the standardization and stable operation of the Company.

**Information Disclosure and Investor Relations Management**

China Southern Airlines followed the regulatory requirements of listed companies to carry out information disclosure, revised the “Information Disclosure Management System of Listed Companies of China Southern Airlines Co., Ltd.” expanded online and offline information disclosure channels and established good investor communication mechanisms with dedicated shareholder communication to protect the interests of small and medium investors and fully protected investor “Right to Know”.

**Party Building**

China Southern adheres to the leadership of the party, thoroughly studied and implemented Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, and continuously improved the quality of China Southern’s party building. In-depth Party Building Planning and implementation of the “Outstanding Young Cadres” selection, “Innovation and Craftsmanship” selection, “Youth Model Project”, “Youth Innovation and Development” and “Youth Model Project” were carried out to consolidate China Southern’s brand and maintain a “A” grade in the assessment of the Party Building Work Responsibility System of the SASAC of the State Council for four consecutive years. The Company promulgated the “China Southern’s Opinions on Guaranteeing High-Quality Development with High-Quality Party Building and Cadre Team Building Planning Outline to ensure the high-quality development of China Southern Airlines. Airline is dedicated to building a world-class air transport enterprise as it transformed into a streamlined state-owned enterprise.

**Strategic Work**

The Company carried out high-quality party history learning and education, organized a series of activities to celebrate the 100th Anniversary of the founding of the CPC, carried forward the great spirit of party building, and carried out in-depth “I do practical things for the masses” and the entrepreneurial efforts of officers. The Company’s higher-level steering group applied China Southern’s party history/learning and education programs that achieved remarkable results.

**Outstanding Young Cadres**

The Company promoted the normaization of political supervision, deepened the reform of the discipline inspection and supervision system, focusing on building an integrated system and mechanism to promote the “do not dare to be corrupt, cannot be corrupt and do not want to be corrupt” improved supervision of “true leaders” and leading groups at all levels; consolidated the effectiveness of central inspections and rectifications, further improved the reporting system for important matters of party committee inspections in secondary and established a special inspection mechanism for inspections and rectification.

**In-Depth Group Work**

The Company actively organized and carried out team building activities of various forms, of which 1,300 were reported by key Chinese media. The brand of Sunshine China Southern has been streamlined, the corporate culture system has been improved and the incidence of the boy with a broken arm in Tianjin has become a national social media phenomenon with 1.6 billion exposures and invested 34.5 million to care for the Daxing International Hub, “Affinity Daxing” and invested 3 billion to create an exposure and featured the Beijing media phenomenon with 1.6 billion exposures and featured the Beijing media phenomenon with 1.6 billion exposures.

**Promoting the Integrate of Party Building into Production and Operation**

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Board Statement

Board Oversight of ESG Matters

As the highest decision-making body for ESG management, the Board of Directors has overall leadership in decision-making and strategic management of China Southern Airlines’ ESG management. The Board is responsible for formulating policies and strategies, regularly reviewing the progress of the work, and making suggestions for improvement. The Board of Directors has overall leadership in decision-making and strategic management of China Southern Airlines’ ESG management. The Board is responsible for formulating policies and strategies, regularly reviewing the progress of the work, and making suggestions for improvement.

Corporate Social Responsibility Management

China Southern Airlines strictly implements the requirements of the State-owned Assets Supervision and Administration Commission of the State Council (hereinafter referred to as the “Central SOA”), China Securities Regulatory Commission, Shanghai Stock Exchange and the Stock Exchange of Hong Kong on the airline’s Corporate Social Responsibility efforts to promote the management of ESG issues. The airline established its Corporate Social Responsibility Governance Framework, which coordinates the construction and implementation of the Corporate Social Responsibility and ESG risk management and internal monitoring systems.

- The Corporate Social Responsibility Steering Committee is headed by the chairman and the general manager of China Southern Airlines. The secretary of the Board of Directors is the leader in charge of Corporate Social Responsibility efforts. China Southern Airlines includes: formulating effective Corporate Social Responsibility strategies and ESG risk management and internal monitoring systems.
- Making decisions, leading and promoting Corporate Social Responsibility efforts, and regularly report to the board on ESG matters.
- The Corporate Social Responsibility Steering Committee is composed of the presidents of the Corporate Social Responsibility Office, and subordinate units, participates in the preparation of Corporate Social Responsibility reports and is responsible for the management of Corporate Social Responsibility issues.

- Formulate and promote the implementation of Corporate Social Responsibility phased plans and annual work plans, and regularly research, summarize, and improve Corporate Social Responsibility work.
- Coordinate and manage Corporate Social Responsibility information disclosure, coordinate Social Responsibility demonstration base construction, Social Responsibility training and communication, Corporate Social Responsibility research, Corporate Social Responsibility evaluation activities and other special Corporate Social Responsibility work, and periodic relevant functional departments and subordinate units to carry out Corporate Social Responsibility work, and provide professional support.

Corporate Social Responsibility Management Policy and Strategy

China Southern Airlines continuously improves its Corporate Social Responsibility management mechanisms. Regularly conduct Corporate social responsibility report preparation training. Established the Corporate Social Responsibility demonstration base. Formulated the Administrative Measures for China Southern’s Corporate Social Responsibility, demonstration base. Established the Corporate Social Responsibility day, and held Corporate Social Responsibility day activities every year.

Activities include green flight, craft duty and customer service, volunteer activities, etc. Participants include employees and their families, employees of all levels, and companies and related companies. The Working Group is composed of functional departments of the headquarters and subordinate units, participates in the preparation of Corporate Social Responsibility reports and is responsible for the management of Corporate Social Responsibility issues. Formulates ESG management goals and work plans, implements ESG management according to the work plans, regularly reports the progress of ESG goals and assists in ESG information disclosure.

China Southern’s Corporate Social Responsibility Governance Framework

Corporate Social Responsibility Steering Committee

The Corporate Social Responsibility Steering Committee is headed by the chairman and the general manager of China Southern Airlines. The secretary of the Board of Directors is the leader in charge of Corporate Social Responsibility efforts. China Southern Airlines includes: formulating effective Corporate Social Responsibility strategies and ESG risk management and internal monitoring systems.

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Corporate Social Responsibility Office

The Corporate Social Responsibility Office - is physically located within the China Southern News Department.

- Cadres are responsible for implementing the resolutions of the Corporate Social Responsibility Steering Committee which coordinates the construction and implementation of the Company’s Corporate Social Responsibility management system.

- Formulate and promote the implementation of Corporate Social Responsibility phased plans and annual work plans, and regularly research, summarize, and improve Corporate Social Responsibility work.

- Coordinate and manage Corporate Social Responsibility information disclosure, coordinate Social Responsibility demonstration base construction, Social Responsibility training and communication, Corporate Social Responsibility research, Corporate Social Responsibility evaluation activities and other special Corporate Social Responsibility work, and periodic relevant functional departments and subordinate units to carry out Corporate Social Responsibility work, and provide professional support.

Corporate Social Responsibility Working Group

The Working Group is composed of functional departments of the headquarters and subordinate units, participates in the preparation of Corporate Social Responsibility reports and is responsible for the management of Corporate Social Responsibility issues. Formulates ESG management goals and work plans, implements ESG management according to the work plans, regularly reports the progress of ESG goals and assists in ESG information disclosure.
Analysis of Material Issues

Based on the internal and external social and economic environment, the Company’s development strategy and the investigation and communication of stakeholders, China Southern senior managers analyzed and adjusted important issues based on the identification and analysis of important issues in Year 2020, and clarified 21 important issues of Year 2021 involving key areas such as safety, environment, service, employees, society, and economy, which have been determined, reviewed and managed by the Board of Directors.

1. Ensuring Safe Flight
   - Continued to promote the “singly system, shift work style and risk control” safety management system
   - Established a long-term safety mechanism from various aspects such as flight safety, operation control and even technological innovations

2. Passenger Health and Safety
   - Formulated standards and requirements for personnel occupational health and food safety
   - Regularly carried out employee health examinations and training sessions
   - In-depth examination of aircrew lectures
   - Executed employee Occupational Health and Disinfection and Food Safety Protection, Environmental Requirements for Personnel

3. Combating Climate Change
   - Set up a leading group for ecological protection
   - Environmental protection work to focus on identifying risks and opportunities brought about by climate change
   - Formulated the “China Southern Group’s Green Development Work Education Scheme
   - Integrated green development into the entire production and operation process of enterprises from the perspective of carbon reduction, energy conservation, and carbon reduction, ground energy consumption reduction, and passenger green travel

4. Waste Disposal
   - Formulated a work plan for pollution prevention and control and issued the “China Southern Airlines Group’s 2021-2025 Plastic Pollution Control Work Plan”
   - Compliant disposal of production and domestic waste
   - Promoted plastic pollution prevention and control
   - Formulated the “Administrative Measures for the Protection of Personal Privacy Data of China Southern”
   - Compliance and lawful collection and use of passenger personal information

5. Promoting Resources
   - The first domestic airline to launch the whole “luggage home” product
   - Launched “One ID” full-process face-scanning travel service
   - Optimizing the Passenger Experience

6. Sustainable Use of Resources
   - Steady promotion of clean-energy replacement
   - Accelerate research and development and actively promote advanced and applicable plastic substitute products

7. Combating Flight Delays
   - Continued to promote the construction of large-scale flight optimization systems
   - Carried out the normal flight improvement project

8. Protecting Passenger Privacy
   - Formulated the “Administrative Measures for the Protection of Personal Privacy Data of China Southern”
   - Compliance and lawful collection and use of passenger personal information

9. Conventional Business Management
   - The first domestic airline to launch the whole “luggage home” product
   - Launched “One ID” full-process face-scanning travel service

10. Reducing Flight Delays
    - Continued to promote the construction of large-scale flight optimization systems
    - Carried out the normal flight improvement project

11. Protecting Passenger Privacy
    - Formulated the “Administrative Measures for the Protection of Personal Privacy Data of China Southern”
    - Compliance and lawful collection and use of passenger personal information

12. Conventional Business Management
    - The first domestic airline to launch the whole “luggage home” product
    - Launched “One ID” full-process face-scanning travel service

13. Supporting Employee Training and Education
    - Organized and implement curriculum development
    - Strengthening the construction of training staff
    - Established a management training mechanism

14. Diversity and Equal Opportunity
    - Adhered to equal pay and equal benefits for equal work
    - Signed the “Special Collective Contract for the Protection of Female Workers’ Rights and Interests”

15. Protection of Female Workers’ Rights and Interests
    - For rectifying the “four bad styles”
    - Formulated and issue relevant systems for rectifying the “four bad styles”
    - Strengthening the supervision of the “top leaders” and the leadership team

16. Employee Compensation and Benefits
    - Established a sound salary system and provided competitive salary
    - Provided insurance and one housing fund and optimized supplementary medical insurance
    - Passenger Rights Protection
    - Responsible for product knowledge promotion
    - Continued to optimize online travel refund and correction services
    - Carried out the key activities of providing services and maintaining complaints

17. Overseas Responsibility
    - Strengthening international cooperation with New Zealand, integrated into the national strategy and promoted local development

18. Pandemic Response
    - Formulated the “China Southern Group’s Fixed-point Assistance Work Plan”
    - Carried out cultural assistance

19. Promoting Suppliers’ Responsibility
    - Strengthening international cooperation with New Zealand, integrated into the national strategy and promoted local development

20. Anti-Corruption
    - Adhered to the honest procurement and degradable green materials procurement
    - Standardized supplier management and promoting suppliers to assume social responsibilities

21. Innovative Development
    - Carried out the top-level design of digital transformation
    - Carried out “Cloud T” digital talent training
    - Fully integrated digitalization into information management, aviation safety, marketing services and green development

22. Legal Compliance
    - Improved comprehensive risk management
    - New intellectual property protection
China Southern has attached great importance to the expectations and demands of various stakeholders and has been committed to building a diversified communication mechanism using multiple channels to communicate with stakeholders, effectively safeguarding the rights of stakeholders to know, participate and supervise as well as responding to stakeholders’ expectations and demands.

In accordance with the new ESG guidelines of the Hong Kong Stock Exchange, the “Consultation Summary Document”, the board of directors identified the important areas that are most closely related to the company’s business and that the company can make a significant contribution to in combination with the company’s strategy and the United Nations 2030 Sustainable Development Goals, setting energy conservation, emission reduction and environmental protection, “Dual Carbon”, plastic pollution control and other aspects of ESG annual goals or mid-term and long-term goals, and regularly evaluated and reviewed their implementation and completion, and put forward suggestions for improvement on the company’s ESG performance to ensure that ESG policies be accurately implemented.
Loyal to the CPC - Celebrating the 100th Anniversary of the CPC

Year 2021 marked the 100th Anniversary of the founding of the Communist Party of China. From the little red boat that sailed the waves of revolution, to the magnetic ship that carried the great cause of regeneration, the Communist Party of China has achieved national rejuvenation and led the people to pursue development achievements that “write the history of the world” in the course of its century of struggle, leaving behind precious experience and spiritual wealth.

Standing on the precipice of an exciting new starting point towards the second centenary goal, China Southern swiftly undertakes the mission of the times, infuses the “red” gene, and leads the majority of cadres and employees to learn history to understand rationale; learn history to increase trust; learn history to honor morality; learn history to strive for the future.

FOCUS 2021

Learn, Think, Practice and Comprehend to Build Consensus

Learning and Sharing - Members of the Central Propaganda Group were twice invited to give special lectures on the central group of the party group’s various study forums, held numerous concentrated study seminars and the central group of party committees at all levels carried out more than 500 study sessions.

Learning “Only I Speak®” - The party committee and the center group of party committee organized study seminars, and held discussion sessions and seminars. The “Green Flag flies for a hundred years, Party History Recalls Profound Years” micro-party class competition, and held live online singing performances; working to learn the party history, carefully to recall the TREE spirits, carry forward the spirit of the “July 1 Speech”

Carry Forward the Spirit - Serving the People

Creating “red route” products - Optimized the routes and flights of Air Khasikhan, Yinchuan, Nanchang, Guangzhou, Chongqing, and other “red” cities that share the revolutionary footprint, launched “Red Tour” themed products and carried out themed activities such as “Check-in Red Footprints” to provide passengers with new opportunities to learn key educational perceptions.

Implementing “10 Practical Things for the Masses” - In response to the common demands and challenges every citizen of China, some 21 key activities were offered such as expanding the coverage of China Southern award-winning On-Demand Dining in-flight meal selection as well as marketing the airline’s “green flag” brand products.

Working Hard - Inheriting the Glory

Between Year 1921 to 2021, generations of Chinese Communists have overcome significant difficulties and forged ahead, opening up the great cause of socialism with Chinese characteristics. Between Years 1995 to 2021, every staff member of China Southern worked tirelessly, contributing wisdom and strength to the high-quality development of China Southern.

Zhu Deci - 50-year party member

As the first person in the capital operation of China Southern Air, 108-year-old Feng Yunwu worked hard for the development of China Southern, and served as the chief of the capital operation until he was nearly 60 years old.

Tang Huizhong - 13-year party member

During the continuous rescue and treatment of children with broken arms in Hotan, Xinjiang, Tang contacted the airport as soon as possible to apply for the aircraft to be return to the gate which opened a “door of hope” for the treatment of this young boy with a broken arm.

Inheriting the “red” gene

China Southern was the Outstanding Organization Award in the finals of the “National Party History Knowledge Contest” jointly organized by the Party History Learning and Education-Official Website and People’s Daily Online.

China Southern worked tirelessly, contributing wisdom and strength to the high-quality development of China Southern.
Achieving peak carbon dioxide emissions and carbon neutrality is a major strategic decision made by the Party Central Committee with Comrade Xi Jinping at its core. It is related to the sustainable development of the Chinese nation and the building of a community with a shared future for mankind. In order to fully achieve peak carbon dioxide emissions and carbon neutrality and build a beautiful China, China Southern integrated green development into the entire process of ground handling and flight operations - starting from aircraft energy saving and carbon reduction, reducing ground energy consumption, and green travel for passengers. The green development model from air to ground, from operation to management, has pushed forward green development to reach the domestic leading level and the international First Class.

Green Flying Towards the "Dual Carbon" Era

During the “14th Five-Year Plan” period, China Southern actively responded to the requirements of the national “Peaking Carbon Dioxide Emission Action Plan before 2030”

- Completed the “China Southern Group Peaking Carbon Dioxide Emission Artificial Carbon Neutrality Target and Achievement Path Project”
- Improved the green operation and management standard system, optimized aircraft weight reduction and fuel saving measures
- Developed environmental protection and energy saving technology, and
- Strengthened the reserve of environmental protection and energy saving technology, and
- Continued to reduce fuel consumption per ton-kilometer and carbon emissions, implemented green and low-carbon actions in transportation through actions in seven major areas:

1. The fuel consumption per ton-kilometer maintains the best level of the three major airlines, leading the low-carbon development of the aviation industry.
2. Fleet Structure Optimization
   - Application of evolutionary technology improved on original aircraft
   - Innovation of light structure configuration to improve flight efficiency
3. Aviation Material Recycling Action
   - Developing carbon neutral routes
   - Exploring supply chain carbon neutrality
   - Negotiating with upstream companies to clarify emission reduction targets
4. Innovation and Exploration
   - Developing carbon neutral routes
   - Exploring supply chain carbon neutrality
   - Negotiating with upstream companies to clarify emission reduction targets
5. Ground Emission Reduction Actions
   - Adapting advanced processing technology and technological innovation
   - Developing carbon footprint offset products
6. Medieval Emission Reduction Actions
   - Adopting energy-efficient ground equipment
7. Industry Chain Coordinated Promotion Action
   - Strengthening the coordination of upstream and downstream industries
   - Research and attention on sustainable alternative fuels for aviation, exploring the promotion and use of new energy products

China Southern’s Carbon Neutral Action Principles

- Aiming at peaking carbon dioxide emission, taking overall consideration to reduce energy consumption
- Stabilize current development to ensure the high-quality development of China Southern
- Green operation, leading the low-carbon development of the aviation industry

The fuel consumption per ton-kilometer maintains the best level of the three major airlines, leading the low-carbon development of the aviation industry.

Focus

Green Flying Towards the “Dual Carbon” Era
FOCUS

Promoting “Dual Carbon” Practice

Aircraft Energy Saving and Carbon Reduction

Adapting the route direction - China Southern adheres to the direction of the Ministry of Transport and the aviation authorities to reduce the use of redundant routes and superfluous routes as much as possible, saving fuel consumption. In addition, it also optimized the route by reducing the distance between airports.

- The accumulated flight distance saved about 6,672 million kilometers.
- Flight time saved: 1,026 hours.
- Fuel consumption reduced by 3,077 tons.

Developing “Fuel-e-Cloud” - Developed the aviation fuel big data platform and a “Fuel-e-Cloud”-integrated flight refueling data platform through the Internet of Things technology, realizing big data support for fueling data platform and pilot EFB fuel management precision to every flight.

- Developed a big data platform to support every flight route, use of jet fuel in total.

- Innovated the fuel-saving technology of the whole operation chain, saving about 83,000 tons of jet fuel in total.

Dynamically Adjusting the Center of Gravity - Building an optimal cruise implementation logic based on the cruising center of gravity and the required flight performance by optimizing the cruising center of gravity.

- Fuel saved about 1,200 tons.

Reducing Floor Energy Consumption

Developing the aviation fuel big data platform into a comprehensive digital fuel-saving and carbon-reduction data platform, provided big data support for scientific decision-making.

- Promoting Digital Fuel Economy - Developed a fuel-saving big data platform and jointly with 19 fuel-saving experts, optimized the management precision to every flight route and jet fuel savings. After optimizations, they achieved savings of 17% in fuel savings.

- Strengthening High-Level Management and Control. For international-long haul routes, the actual used temperature was considered. For short-haul routes, referred to the QNI historical flight data, the route altitude information fed back by dispatcher, and pilots was analyzed and adjusted, the deviation between the planned altitude and the actual altitude of the flight route was monitored monthly to determine the optimal flight altitude.

- Average cruising altitude increased by approximately 846 feet.
- The total fuel saving is 32,800 tons.

Green Travel for Tourists

In the four major links of ticket purchase, travel boarding and after travel, China Southern provided passengers with a green and low-carbon full-journey experience and called on passengers to do their part to protect the environment.

- Launched the “China Southern e-Travel” one-stop service platform - Opening more than 300 travel service links, and provided services such as paperless check-in, security check and flight boarding, and promoted online ticket processing of electronic invoices to realize the “paperless” process of passenger travel.

- Cumulatively more than 232 million passengers participated in the green flight “On Demand Dining” service.

- Launched “Seafood Demand Dining” project - Carried out carbon footprint analysis for Economy Class meals and obtained third-party carbon audit certification, provided passengers with low-carbon food choices, and guided qualified passengers to practice carbon reduction.

- A total of 1.4 million electronic invoices have been issued.

- Launching the “China Southern Green Flying Towards the ‘Dual Carbon’ Era”.

- Cumulatively more than 3.71 million passengers participated in the green flight “On Demand Dining” service.

- That saved more than 1,762 tons of meals.

- Launched the “Seafood Becomes a Fact” project - Established a carbon footprint database of Seafood, achieved a green carbon footprint service, and obtained third-party carbon audit certification, provided passengers with low-carbon sea choices, and guided qualified passengers to practice carbon reduction.

- A total of 1.4 million electronic invoices have been issued.
**FOCUS**

**Green Flying Towards the "Dual Carbon" Era**

Meeting the Realization of "Dual Carbon"

China Southern is the first airline in China's civil aviation industry to begin “dual carbon” research as Company directors moved quickly to market the “plastic restriction order” in both directions.

The Company was also the first airline to:
- self-develop a domestic aviation fuel big data management system.
- self-develop a practical air fuel saving management model, and
- self-develop an intelligent monitoring system for on-site vehicles.

The Company’s annual comprehensive energy consumption is 8,963,974 tons of standard coal and the comprehensive energy consumption per 10,000 yuan of income is 0.8726 tons of standard coal per 10,000 yuan.

### Fuel Consumption per Ton-Kilometer (ton/ton-kilometer)

<table>
<thead>
<tr>
<th>Year</th>
<th>Narrow body model</th>
<th>Wide body model</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>3.43</td>
<td>3.40</td>
</tr>
<tr>
<td>2020</td>
<td>3.40</td>
<td>3.40</td>
</tr>
<tr>
<td>2019</td>
<td>3.40</td>
<td>3.40</td>
</tr>
</tbody>
</table>

### Carbon Dioxide Emissions (10,000 tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>2021</th>
<th>2020</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value (tons)</td>
<td>8.69</td>
<td>9.29</td>
<td>8.98</td>
</tr>
</tbody>
</table>

### Emission of Greenhouse Gases

- **CO₂ emissions per ton-kilometer**
  - Value (ton/ton-kilometer) 2.00
  - Value (ton/ton-kilometer) 2.23
  - Value (ton/ton-kilometer) 2.24

- **CO₂ emissions per ton-kilometer**
  - Value (ton/ton-kilometer) 8,598.59
  - Value (ton/ton-kilometer) 7,282.09
  - Value (ton/ton-kilometer) 6,384.37

- **CO₂ emissions per ton-kilometer**
  - Value (ton/ton-kilometer) 550
  - Value (ton/ton-kilometer) 0

- **CO₂ emissions per ton-kilometer**
  - Value (ton/ton-kilometer) 0

### Energy Consumption

- **Aviation fuel (10,000 tons)**
  - Value (tons) 903.33
  - Value (tons) 615.27
  - Value (tons) 605.31

- **Gasoline (tons)**
  - Value (tons) 4,409.11
  - Value (tons) 3,922.78
  - Value (tons) 3,452.12

- **Diesel (tons)**
  - Value (tons) 8,598.59
  - Value (tons) 7,282.09
  - Value (tons) 6,364.37

- **Coal (tons)**
  - Value (tons) 550
  - Value (tons) 0
  - Value (tons) 0

**Meeting the Realization of “Dual Carbon”**

Successfully achieved NDRC’s “13th Five-Year” target on “double control” of energy consumption total and intensity as well as the assessment target of “100” key energy-consuming units’ energy-saving target.

**“Green Flight” On-Demand Dining Meal Service**

+ Won the Champion Award of the First “Golden Key - SDG-oriented China Action”
+ Included as a model for creating a low-carbon “source” in the Province in the Asia-Pacific Golden Key Shaping China’s Enterprises Low-Carbon Action Leadership Report and awarded the program to the world under the China Enterprise Pavilion in 2018 at the 26th Conference of the Parties (COP26) of the United Nations Framework Convention on Climate Change.

Selected as the “Carbon Neutrality Typical Case” of the 2nd Green Economy Development Forum 2011 and hosted by People’s Daily Online, China Environmental Protection Federation, and the Publicity and Education Center of the Ministry of Ecology and Environment.

Awarded the “Environmental Airline of the Year” by China Civil Aviation magazine, maintaining a leading position in China’s civil aviation industry, and

+ Won the “Annual Quality Service Airline” by the Beijing News.

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Digital Transformation Enabled High-Quality Development

China Southern senior managers insist on innovative development, constantly exploring digital transformation as an important path to achieve high-quality development, carried out top-level design for digital transformation, striving for the goal of building a world-class air transport enterprise.

Promoted the construction of "three networks" and "four modernizations" to help China Southern Airlines develop with high quality.

Built a social internet, four comprehensively interact with customers at all touch points, built a customer-oriented ecosystem value for partners around products and services, and built a win-win industrial internet environment, strengthening internal and external collaboration mechanisms.

Transformed the deep integration of new generation information technology and digital content, digital employees, digital processes, and digital companies.

Built a new IT architecture, implemented the EA methodology and promoted the deep integration of technology and business.

Continuously strengthened IT infrastructure, network security and consulting power support, introduced enterprise architecture (EA) methodology, strengthened the integration from intelligent planning, business architecture design, technical architecture specification to project implementation, and led the architecture to inherit information and service-oriented and consistent user experience development.

Based on the new generation IT architecture planning of "one cloud, China Southern Airlines Cloud（China Southern Airlines Data Center）+ two middle stations (data middle station, business middle station) + N front-end applications based on new IT architecture", realized the cloud-based use of data and empowered intelligence, comprehensively improved digital management and control and injected new momentum into digital transformation.

Adopting the flex-in command and control system, China Southern's senior managers led the necessary and current job setup and the startup of the enterprise structure and digital transformation management office. At the headquarter, set up the big data and technological information and policy management department, strengthened the top-level design and overall management of digital construction, coordinated processes, and laid the foundation for promoting digital transformation and its application. With the help of the "Cloud T" digital talent training project, cultivated compound talents who understand both business and technology.

Accelerated industrial digitalization, built up the China Southern Airlines ecosystem, and explored business model changes.

With the help of a new generation of information technology, promoted the transformation of passenger transport to a modern service integrator and freight transport to a modern logistics integrator; opened up the upstream and downstream industrial ecology, became a platform for China Southern's ecological circle, established a supply chain system associated with the whole process of passenger travel, connected high-quality partners, and provided passengers with one-stop comprehensive solutions and promoted business model changes.

Promoted cloud-based use of data and empowered intelligence, comprehensively improved digital management and control, and injected new momentum into digital transformation.

Adept in Using the Cloud and Data to Empower Wisdom

China Southern invested in innovative development, constantly explored digital transformation as an important path to achieve high-quality development, carried out top-level design for digital transformation, moved towards the goal of building a world-class air transport enterprise.

China Southern has continued to improve in information management and control capabilities, carried out "Cloud T" digital talent training, finally promoted the cloud-based use of data and empowered intelligence, comprehensively improved digital management and control, and injected new momentum into digital transformation.

Improved organizational structure and mechanism construction and enhanced digital awareness and capabilities.

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Going to the Cloud and Empowering Wisdom with Numbers

China Southern's Digital Transformation and Intelligent Transformation

Cloud Computing, Big Data Analysis, AI and Edge Computing, Internet of Things technology, 5G network technology, Augmented Reality intelligently assisted maintenance and other technologies such as computing, we have created comprehensive solutions such as smart operation, smart factories, and smart cargo stations empowering front-line production which greatly improved labor productivity.

The “Cloud T” digital talent training project took China Southern Airlines' Pearl Innovation Studio as the carrier, and through digital transformation and intelligent transformation, we have created new competitive advantages such as smart operation, smart factories, and smart cargo stations. The project has continuously guaranteed flight safety for 331 months. The safety level continued to maintain a leading position in China’s civil aviation industry.

China Southern created a safe, punctual, and green air travel experience for customers.

The first in-flight On Demand Dining meal service of “green flight”, the first domestic airline company to independently develop the aviation fuel big data management system and ranked as an advanced unit in the three-year action of “Winning the Blue Sky Defense War” by the Civil Aviation Administration; Winning the champion award of the first Golden Key - China Action for SDG (Sustainable Development Goals).
During Year 2021, China Southern organized a special rectification team for preventing the import of overseas pandemics, general manager of the Company serving as the team leader. The team consisted of four special classes for inbound crew, inbound passengers, inbound cargo and inbound aviation waste. We established a three-level supervision and inspection mechanism: post-supervision, department inspection, and unit inspection, and comprehensively rectified all aspects of the Company’s prevention of overseas input, eliminated hidden risks, ensured that protective measures were in place, and guaranteed the safe travel of passengers.

Since May 2021, local COVID-19 pandemic has rebounded in many parts of the country and the domestic medium and high-risk areas have been continuously updated, sounding the alarm for pandemic prevention and control. China Southern directors acted quickly and made careful arrangements to prevent and control outbreaks of COVID-19 and comprehensively upgraded pandemic prevention and control measures to ensure the safety and health of all passengers and employees.

Focusing on Key Population Groups - Company officials formulated differentiated COVID-19 prevention and control measures for key groups such as crew members, flight attendants, ground service personnel and freight transporters and provided detailed protection guidelines for employees in different positions; carried out pandemic prevention and control training for all employees and strengthened the supervision and inspection of key units, key positions and key links … and effectively achieved an effective closed-loop management scheme.

Line of Defense Against Pandemic - Encouraged employees to take all vaccination needed. During Year 2021, 89,599 people were vaccinated against COVID-19 as the vaccination rate reached 99.96% (except for contraindications). The vaccination rate of on-the-job staff and aircrews in high, medium and low-risk positions reached 100%; strictly implemented nucleic acid screening and carried out nucleic acid testing for airline employees in different positions in accordance with the requirements of the Civil Aviation Administration and local pandemic prevention departments.

Employee Safety - The "Lifeline" in the Anti-Pandemic Escort Aviation During Year 2021, the spread of the COVID-19 plague surged around the world as the domestic pandemic situation was intertwined and superimposed by sporadic and local clustered outbreaks. On the basis of summarizing the effective experience of pandemic prevention and control during 2021, China Southern senior directors paid close attention to serious prevention and control measures, and adhered to “taking all vaccinations as needed”, strictly implemented the strategy of “defense of overseas input, defense of domestic rebound and personal defense”, differentiated into employee protection and采取了 strict control measures, built a solid air defense line, and went all out in fighting the COVID-19 scourge.
Facing the dire challenges of the international pandemic, China Southern actively responded to the clarion call of the state, supporting the global fight against the pandemic and created the “China Southern Vaccine Safe Delivery” procedures to help China’s COVID-19 vaccine be delivered to the world safely and quickly.

- Actively participated in the nation’s clarion call to build a global community with a shared future for mankind and delivered three categories of COVID-19 vaccines to 16 international countries including Cambodia, Tajikistan, Ukraine and Serbia as well as 20 domestic cities.
- Actively participated in "COVAX" - the implementation plan of dispersing COVID-19 vaccines and served international organizations such as UNICEF as part of its Corporate Social Responsibility service.

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- Vigorously developed aviation logistics, relying on the largest Boeing B777 freighter fleet in China; completed 19 intercontinental freight routes, organized 7,023 passenger-to-cargo flights and made significant efforts to ensure the safety and stability of the national industrial supply chain.

- The transportation volume of the COVID-19 vaccine exceeded 130 million doses, ranking first in China’s civil aviation.

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Heart-Warming Anti-Pandemic

Love Prevails. In light of numerous changes in the COVID-19 pandemic, China Southern directors actively optimized and adjusted its flight services and encouraged employees to actively participate in the “Anti-Pandemic Escort” volunteer service action to share personal time with passengers and isolated personnel during the normalization of the pandemic.

The Company utilized news announcements, online ticketing flow reminders, online smart Q&A, text messages and other social media methods to immediately convey its pandemic prevention and control policies to passengers, guiding the completion of refund and modification operations such as air tickets, products and services, and reducing passenger complaints and the risk of unused seats to ensure smooth travel for passengers.

In order to ensure the orderly and safe management of COVID-19 pandemic prevention and control of crew members, the Company conscientiously implemented a centralized isolation of aircrews and the management of home health monitoring. Meal arrangements were adjusted monthly and "box lunch quality" isolated meals and healthy light meals were introduced to meet the crew’s dietary needs.

For staff units that were isolated due to the COVID-19 pandemic, the Company conducted video centralized “one-on-one” communication and heart-to-heart chats so that isolation from other people did not mean separation from love and the psychological challenges of isolation.

During Year 2021, China Southern quarantined more than 67,000 aircrews with the longest personal quarantine period lasting 293 days.

Case | The First Charter Flight of China’s Civil Aviation of COVID-19 Vaccines in North Macedonia

On June 27, China Southern Airlines flights CZ8083 and CZ5077, carrying 500,000 doses of Sinovac’s COVID-19 vaccine, departed from Beijing Daxing International Airport to Skopje, the capital of the Republic of North Macedonia.

This marked the first time that Chinese civil aviation has carried COVID-19 vaccines to a non-navigable point in Europe. In order to successfully complete this historic transport of the COVID-19 vaccine in North Macedonia, China Southern established a special transport working group, and formulated work checklists and emergency plans for many links including vaccine packaging, security check entry, cold storage, outbound testing, and destination station unloading. Concurrently, a smooth communication channel with the North Macedonian government, vaccine manufacturers and logistics operators was established, a “housekeeper-style” tracking and service guarantee was tailored to ensure the safe escort of China’s COVID-19 vaccines.

“Anti-Pandemic Escort” Volunteer Service Action

Organized and mobilized young volunteers to fully support on-site guidance, code scanning assistance and order maintenance at nucleic acid testing points such as Guangzhou Baiyun International Airport.

Swift Delivery of Pandemic Prevention Policies

The Company utilized news announcements, online ticketing flow reminders, online smart Q&A, text messages and other social media methods to immediately convey its pandemic prevention and control policies to passengers, guiding the completion of refund and modification operations such as air tickets, products and services, and reducing passenger complaints and the risk of unused seats to ensure smooth travel for passengers.

Successful Completion of Isolation Crew Service

In order to ensure the orderly and safe management of COVID-19 pandemic prevention and control of crew members, the Company conscientiously implemented a centralized isolation of aircrews and the management of home health monitoring. Meal arrangements were adjusted monthly and “box lunch quality” isolated meals and healthy light meals were introduced to meet the crew’s dietary needs.

For staff units that were isolated due to the COVID-19 pandemic, the Company provided conducted video centralized “one-on-one” communication and heart-to-heart chats so that isolation from other people did not mean separation from love and the psychological challenges of isolation.

During Year 2021, China Southern quarantined more than 67,000 aircrews with the longest personal quarantine period lasting 293 days.

Case | The First Charter Flight of China’s Civil Aviation of COVID-19 Vaccines in North Macedonia

On June 27, China Southern Airlines flights CZ8083 and CZ5077, carrying 500,000 doses of Sinovac’s COVID-19 vaccine, departed from Beijing Daxing International Airport to Skopje, the capital of the Republic of North Macedonia.

This marked the first time that Chinese civil aviation has carried COVID-19 vaccines to a non-navigable point in Europe. In order to successfully complete this historic transport of the COVID-19 vaccine in North Macedonia, China Southern established a special transport working group, and formulated work checklists and emergency plans for many links including vaccine packaging, security check entry, cold storage, outbound testing, and destination station unloading. Concurrently, a smooth communication channel with the North Macedonian government, vaccine manufacturers and logistics operators was established, a “housekeeper-style” tracking and service guarantee was tailored to ensure the safe escort of China’s COVID-19 vaccines.

“Anti-Pandemic Escort” Volunteer Service Action

Organized and mobilized young volunteers to fully support on-site guidance, code scanning assistance and order maintenance at nucleic acid testing points such as Guangzhou Baiyun International Airport.

Swift Delivery of Pandemic Prevention Policies

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Building a Strong Line of Defense - Setting Sail for a Safe Future

01

Safety is the lifeblood of the civil aviation industry. China Southern Airlines has always taken ensuring aviation safety as its primary task of practicing “aviation of the people and for the people”, and made every effort to ensure the safety of every passenger, the health and safety of all employees, and guaranteed the safe situation is stable and controllable as it continues to maintain the best airline safety record in China.

Contributed to the achievement of the UN 2030 Sustainable Development Goals
China Southern senior managers continued to tackle the tough safety battle of “strengthening the system, keeping strict work style, and controlling risks” by continuously deepening the three-year special rectification of safety production, further promoting the construction of seven major safety systems, consolidating the safety foundation, and preventing and controlling safety risks so as to create a good safety culture atmosphere and fundamentally improve safety management and control capabilities. During 2021, China Southern had no production safety incidents.

### Consolidating Safety Management

#### Safety System Construction

The Company adhered to tried-and-true system concepts and focused on safety with rules and manuals, drills and training, process control, risk management and control, safety culture, and technological innovation as the core, to further the transformation of safety management to institutionalization, structure, systemization, and informatization, and continuously improved its safety levels of modernization of governance systems and governance capabilities.

#### Serious Safety Responsibilities

The Company further clarified the main responsibilities, leadership, supervision and post responsibilities; revised, improved and implemented the main responsibilities list and its post responsibilities list to ensure that safety responsibilities were not in vain and not virtual, and can easily be implemented.

#### Security Risk Management

The Company stayed with its “zero tolerance” policies to look out for potential safety hazards, continued to promote “zero potential problems”, seriously investigated and controlled the “two lists” and revised and improved system regulations and procedures; fully took the “Hundred Days Action” campaign to ensure a stable security environment.

#### Tackling Key Points of Safety

The Company implemented a dual prevention mechanism of safety classification management and control and hidden-danger investigation and management which added to joint risk prevention and control and improved the EMS (safety management system) platform and emergency plans which included the full use of the DMS risk management and control system which connected the professional risk management and control functions of each unit and managed and controlled complex cross-unit risks.

#### Promoting Safety Culture

The Company launched the “Three Aews” and safety culture presentations to promote the “Three Aews” to be deeply rooted in the hearts of the people and achieve positive results; comprehensively used cultural publicity, special lectures, online micro-classes and other social media means to effectively strengthen safety education; formulated and applied “four forms of comprehensive and strict public security” and continued to strengthen the construction of its work culture.

#### Strengthening Aircrew

Ideological and political construction helped to improve the professional team’s work style and behavior norms. As Company officials built a systematic and efficient ideological and political work system for the air crew, and carried out the “Year of Consolidating the Ideological and Political Work of the Air Crew”. The Company continued to enhance the “Three Awes” and safety culture presentations.

#### Improving System Risk Management and Control Capabilities

The Company implemented a dual prevention mechanism of safety classification management and control and hidden-danger investigation and management which added to joint risk prevention and control and improved the EMS (safety management system) platform and emergency plans which included the full use of the DMS risk management and control system which connected the professional risk management and control functions of each unit and managed and controlled complex cross-unit risks.

### Building a Strong Line of Defense - Setting Sail for a Safe Future

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2021 Corporate Social Responsibility Report of China Southern
Adhering to Aviation Safety

China Southern has continuously strengthened the management of aircrews from the aspects of capability improvement, training, promotion of safety performance management of fatigue risk, to improve safety awareness and safe aircrew operation levels.

### Competence Building

The Company was the first in China to:
- Carry out EBT pilot work
- Explored CRM (crew resource management) courses for key inflight personnel, operation control, maintenance and other key positions
- Carried out “Flight Lecture” training to improve the qualifications and capabilities of flight personnel
- Organized seasonal learning seminars and complex state recovery training to improve aviation safety
- Fully utilized online training, VR training and practical drills to carry out special training on hatch door controls, and the proper use of emergency equipment to improve on-board safety operations and emergency response capabilities

### Aircrew Management

2021 Corporate Social Responsibility Report of China Southern

China Southern has continuously strengthened the management of aircrews from the aspects of capability improvement, training, promotion of safety performance management of fatigue risk, to improve safety awareness and safe aircrew operation levels.
Case | The First Cabin VR Multi-Person Collaborative Training System in China

In order to effectively improve the emergency response and decision-making response capabilities of front-line personnel, China Southern Airlines has innovatively applied VR technology to the aviation field.

The first domestic VR multi-person collaborative training system in the cabin breaks the VR operation limitation of single person and single task and realized the simultaneous completion of firefighting training by three people. A series of emergency situations that could occur after a cabin fire was simulated and collaborative firefighting training was carried out; the indicators of each link of firefighting disposal were quantitatively analyzed, and detailed firefighting disposal analysis reports and comparison of previous disposal data were provided; multi-person interactive LED large screen teaching improved the effectiveness of the training of simulation cabin trainers.

Case | Holding the First Flight SOP Competition

In order to further test and enhance professional knowledge and practical skills, China Southern held the first flight SOP competition during Year 2021, closely following the reality, focusing on the key and difficult points of flight safety, and integrated the skills competition with flight work.

From the flexible application of SOP knowledge, strict implementation of procedures to proactivity of regulations, and accurate judgment of decision-making, comprehensively improved the ability of pilots, the program fully demonstrated the superb skills, rigorous style and fast cooperation of China Southern pilots, helping to promote safety quality.

Supervision Assessment

The Company strictly formulated the requirements in terms such as “Simulator Cabins Development Management Regulations” and “Cabins Management Manual,” carried out regular SOP training and training improvement processes and improved the management ability and realization level of GNMPM. This established a comprehensive management and operational mechanism that centrally promoted safety performance management and further standardized processes to effectively reduce safety risks.

Fatigue Management

The Company strictly managed and implemented the regulations and requirements of the Civil Aviation Administration, introduced the “Fatigue Risk Management System” which continuously monitored and controlled fatigue risks, and dealt with the fatigue incidents and fatigue risks caused by pilot fatigue.

Operation Control

- By the end of Year 2021 China Southern has obtained 23 national civil aircraft maintenance licenses.
- Has 23 maintenance roles.
- Has 19 maintenance hangers.
- Fleet release reliability ranks first among the three major airlines.
- Airbus A319, A320; Boeing B777, B787 fleet release reliability ranked first in the world.
- The technical branch team has become the only enterprise based in the air transport industry that has been promoted to the Top 10 in the country since the launch of the China Industrial Internet Competition.

In the field of maintenance and repair, China Southern earned the most awards in this field.

Operational Command

The Company regularly carried out risk assessment of new routes, compiled and issued safety risk reminders, and gave key warnings to potential challenges such as severe weather, small and medium-sized special airport operations, airspace adjustment and the safety to ensure that dispatchers could grasp the operation risk reminder information of the day and deal with flight system alerts in a timely manner.

All these and many more procedures led to impact the Company’s security guarantees as officials adhered to incident investigation, safety inspection, operation safety supervision and statutory safety inspection and focused on supervision and rectification of issues such as dispatcher failures, released explanations for small and medium-sized special airports and the safety to ensure that hidden dangers can be rectified in place.

Air Defense

The Company carried out joint air-ground exercises. On the basis of on-the-spot training and rehearsal, the airline officials carried out joint air-ground drills to fully prepare for actual emergency response scenarios and effectively improve the response capability to deal with emergencies.

China Southern maintained safety and order on board all flights and gave key warnings to potential challenges such as severe weather, small and medium-sized special airport operations, airspace adjustment and the safety to ensure that dispatchers could grasp the operation risk reminder information of the day and deal with flight system alerts in a timely manner.

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Air Defense

The Company established a health management platform which provided real-time and multi-directional monitoring of the health status of the engine during flight, development of sound and light warning devices for engine performance monitoring, real-time alarm function for important engine monitoring and warning which allowed for immediate response.

Extended model failure map as airline officials carried out engineering investigations in attendance failures, important failures and key events in the world fleet, continuously enriched and improved the “Flight Medical Code,” expanding the failure maps of various aircraft types, improved the efficiency of failure judgment and processing, and provided reliable capacity guarantees for on-site operations.

Building a Strong Line of Defense — Setting Sail for a Safe Future

China Southern has continuously strengthened the identification and management of safety risks during flight operation, improved emergency response capabilities and the efficiency of fault diagnosis and handling, ensuring safe and stable flight operation.

2021 Corporate Social Responsibility Report of China Southern
China Southern Airlines escorted safe flights with technological innovation and constantly explored research and application of information technology in the field of safety.

**Technology Escort**

**Digital Control**
The Company increased its research and development of the integrated dispatch management system – iFOS – which can integrate core management functions such as announcements, airborne data, routes, and aircraft performance, promote the digital integrated management of flights, aircraft, and airports, realize automatic calculation of flight plans and digital control of dispatch and release processes, and effectively reduce air routes, navigation data, performance weight limit and other core risks and human errors and comprehensively improve the level of risk control.

**Visual Monitoring**
The Company promoted the application of personal flight data visualization (FDV) projects to achieve immediate APP playback of QAR landing; established a risk radar system to structure flight risk assessment, prediction and control; carried out Route Operation Safety Assessment (LOSA), analyzed operational challenges through non-intrusive route observation and recording, putting forward effective suggestions and improved training, safety and operation in a targeted manner.

**Intelligent Maintenance**
The Company upgraded its remote diagnosis system, strengthened the big data analysis method, and shared the aircraft operation status in real time. Promoted lean management of the entire engine life cycle and reduced engine maintenance costs. This included the development of a remote cooperation platform for engine hole detection to realize rapid damage judgment and treatment as well as the application of AR, VR, 5G and other information technology, focused on building a “smart workshop” to continuously improve the intelligence level of aircraft maintenance.

**Ensuring Passenger Safety**

**Food Safety**
The Company continued to promote the ISO 9001, ISO 22000, HACCP system construction and certification of the aviation catering system, established a “three-level inspection system”, carried out special rectification and improvement actions for food hygiene and safety to manage the entire production chain, and monitor food hygiene and safety risks to ensure air catering safety and quality.

**Medical Support**
The Company designated specialized aviation doctors to provide 24-hour online health consultation and review for sick passengers. During Year 2021, aviation physicians provided medical advice to 2,230 sick and/or people with a disability among which 139 ill passengers were deemed unfit to fly.

**Cabin Safety**
The Company strengthened safety risk management to deal with special situations such as potential lithium battery smoke and ensure safe and stable operation during peak seasons with high air turbulence, made service plans and ensured timely reporting and disposal of special information.
In-depth development of aircrew mental health promotion services, through psychological “salon group” counseling, one-on-one professional consultation and psychological crisis intervention to improve the mental health and well-being of all employees.

China Southern Airlines has established a leading group to take good care of the centralized isolation personnel, starting from the psychological health of the isolated employees, life service guarantee and pandemic prevention and control, both offline and online, with organizational care, family warmth line, professional support line … and implemented the “three-piece set” practice of psychological anti-pandemic and improved the mental health of pilots throughout the chain.

In order to provide humanistic care and good service to the centralized isolation personnel, China Southern Airlines has always attached the greatest importance to the physical and mental health of every employee, strictly abiding by the Labor Law, the Law on the Prevention and Control of Occupational Diseases and other laws and regulations that enhance the identification and assessment of occupational health and safety risks for employees while providing mental health services to protect the physical and mental health of all employees.

In year 2021, the Company provided 252 consultations for quarantined persons, with a total consultation hours of 360.17 hours.

The Company strengthened health knowledge education and disease prevention reminders, improved the dynamic management of health interventions for key personnel, and optimized pilots’ individualized health management.

China Southern Airlines’ senior leaders promoted the implementation of pilots’ mental health promotion plan, the introduction of mental health awareness, studied pilots’ psychological assessment and pilot psychological selection “three steps” psychological support work, and built “three care lines”, namely organizational care line, family warmth line, professional support line … and implemented the “three-piece set” practice in the psychological anti-pandemic and improved the mental health of pilots throughout the chain.

The joint expert team developed mental health promotion products, carried out continuous learning on 14 antennae and released the psychological pressure of quarantined personnel. During Year 2021, the Company provided 252 consultations for quarantined persons, with a total consultation hours of 360.17 hours.

Case | Actively Promoting Flight Safety and Health Management

In order to ensure the quality of life as well as the physical and mental health of aircrews and to ensure the safety of flight operations, China Southern Airlines actively promoted the construction of a flight health management system and incorporated health management into employees’ entire career cycle.

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Managing Occupational Health

Physical Health

The Company regularly carried out employee health examinations and offered training seminars to target health management according to different types of employees.

- The Company worked to improve employee health management and optimized physical examination work for all employees by arranging for online and offline health lectures and emergency first aid training.
- Special inspections on food hygiene and safety at all employee cafeterias.
- Adopted the arrow health classification management model to implement individualized health management.
- Doing a good job in managing health risk controls.
- Organizing the consciousness of aircrews.
- Invited experts from tertiary hospitals to carry out medical knowledge popularization.

Mental Health

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Case | Caring for Isolation Personnel

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In-depth development of aircrews’ mental health promotion services, through psychological “salon group” counseling, one-on-one professional consultation and psychological crisis intervention to improve the mental health and well-being of all employees.

A psychological counseling and care policy for quarantined persons was introduced, and an unlimited number of free psychological counseling hotlines and individual counseling services were provided.

In-depth development of aircrews’ mental health promotion services, through psychological “salon group” counseling, one-on-one professional consultation and psychological crisis intervention to improve the mental health and well-being of all employees.

The Company revised and improved the “Pilot Health and Safety Operation Risk Management Regulations” and “Pilot Health Classification Management Regulations” to provide supporting guidelines for standardizing health and safety management.

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China Southern Airlines corporate culture has continually adhered to the guidance of Xi Jinping’s ecological civilization thought, unswervingly implementing the concept of green development, establishing and improving energy and environmental management systems, and continuously promoting energy conservation and emission reductions. The Company has fought the good fight of pollution prevention and control and led the green and low-carbon development of the aviation industry as the Company builds a community with a shared future for aviation green development and makes contributions to building a beautiful China.

Contributed to the achievement of the UN 2030 Sustainable Development Goals.
Improving Environmental Management

China Southern attaches great importance to environmental protection. The airline set up a Leading Team for Ecological and Environmental Protection to organize, plan and supervise the energy conservation and emission reduction work, coordinate and resolve major problems and promote the implementation of varied measures.

The Board of Directors of China Southern Airlines also participated in the determination of important environmental issues such as climate change, waste disposal and sustainable resource utilization... as regularly summarizing, supervising and reviewing the performance of key performance indicators for energy conservation, carbon reduction and pollution control.

China Southern senior managers recognized the importance of climate change and attached great importance to identifying risks and opportunities brought about by climate change in order to reduce the environmental footprint of the Company’s production and operations.

Climate risks such as increased frequency, severity and uncertainty of extreme weather may lead to increased frequency of flight delays and cancellations, as well as global temperature and the rise of sea levels which may also have long-term strategic and operational implications for the entire aviation industry.

Strategic Actual and Potential Impacts of Climate-Related Risks and Opportunities on Business, Strategic and Financial Developments

The Company carried out work in strict accordance with the requirements of environmental impact assessment and environmental protection “three simultaneous”. This included:

- Formulating energy conservation and emission reduction management methods, development and annual work plans, and incorporating energy conservation and emission reduction throughout the entire process of enterprise reform, structural adjustment and optimization and management improvement.

- Building an environmental management system that integrated data reporting, pollution prevention and control training, publicity and budget management, and conducted statistical analysis and reporting on a regular basis.

- An accountability system was established to supervise and audit the energy conservation and emission reduction work of 24 secondary units every year.

- Designated airlines officials served on the IATA Sustainability and Environment Advisory Committee, and actively participated in working groups such as carbon emissions and aviation sustainable fuels and carried out research on civil aviation carbon emission policy response strategies and actively explored the sale of excess carbon allowances, and

- Company officials paid close attention to the technological progress and commercial operation of sustainable aviation fuel and jointly studied airline carbon footprint certification, sustainable certification, commercial operation and other issues with relevant domestic institutions.

Governance Governor’s Measures for Climate-Related Risks and Opportunities

- A leading team for ecological and environmental protection work was established with senior managers from the Company serving as team leader and the members of the party organization as deputy team leaders to organize, plan and supervise the energy conservation and emission reduction work, coordinate and resolve major problems and promote the implementation of varied measures.

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Risk Management Identifying, Assessing and Managing Climate-Related Risks

The Company formulated the “China Southern Group Green Development Work Plan” to clarify the overall work goals of green development, and put forward three key work goals of energy conservation, emission reduction and environmental protection, “dual carbon” and plastic pollution control.

In terms of energy conservation, emission reduction and environmental protection, the Company is pledged to strive to achieve a fuel consumption of no more than 0.26 kg per ton per kilometer by the end of the “14th Five-Year Plan” period, and prevent the occurrence of environmental pollution liability incidents.

In terms of “Dual Carbon”, according to the “Dual Carbon” path schedule of higher-level units such as the Civil Aviation Administration, “China Southern Group Peaking Carbon Intensity targets and Achievement Path Report” was prepared.

In terms of plastic restriction, the Company will no longer offer disposable non-degradable plastic straws, stirring sticks, meal/scoop sets and packaging bags on international passenger flights by the end of Year 2022 and realize non-degradable plastic type, disposable non-degradable plastic rain cloth, wrapping film and other cargo packaging use by the end of Year 2024 as supply usage has dropped significantly.

Metrics and Goals Metrics and Targets for Assessing and Managing Climate-Related Risks and Opportunities

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Implementing Energy Saving and Emission Reduction

Throughout Year 2021, China Southern senior leaders paid great attention to energy conservation and utilisation, steadily promoted the replacement of clean energy, reduced energy resource consumption and waste discharge during production and operation to minimize the impact on the environment.

Saving Energy

- Through measures such as route optimization, aviation fuel management, "aviation fuel-e-cloud" management, and aircraft weight reduction, green flight was comprehensively promoted, fuel consumption was reduced and energy utilization efficiency was improved.

- This provided a new emphasis on new energy resources, the use of electric-ground service vehicles, increasing the proportion of clean energy use and gradually replacing carbon-burning gasoline vehicles with new-energy efficient electric vehicles.

Conserving Water

- The Company also took great care with its precious water resources by transforming aircraft water supply trucks and promoted the water truck spray methods for aircraft disinfection, using 5,648 tons of water throughout the year.

- This included dry cleaning to replace traditional wet cleaning of its aircraft to optimize the cleaning process, improving cleaning efficiency and reducing the adsorption of dust and dirt to reduce water consumption.

- The Company increased its scientific research investments in degradable alternatives, accelerated the development of advanced and applicable plastic alternatives and designed new packaging materials for paper cups and cups. The included:
  - New packaging materials for paper cups and cutlery. The included dry cleaning to replace traditional wet cleaning of its aircraft to optimize the cleaning process, improving cleaning efficiency and reducing the adsorption of dust and dirt to reduce water consumption.

Green Packaging

The Company increased its scientific research investments in degradable alternatives, accelerated the development of advanced and applicable plastic alternatives and designed new packaging materials for paper cups and cups. The included:

- Actively promoting recyclable and foldable packaging products and reduce the supply of plastic products.
- Sourced supplies that meet the criteria for the compostable alternative category.
- Issued the "China Southern Group 2021-2025 Action Plan for Plastic Pollution Control" and formulated the goals and task arrangements for plastic pollution control and carried out the target management plans to prevent plastic pollution and control plastic waste. The "China Southern Group's 2021-2025 Plastic Pollution Control Work Plan" for staff to handle production waste and domestic waste in compliance with regulations, fully promoted the control of plastic pollution, and continuously improved pollution prevention and environmental protection management plans to reduce environmental impact.

During Year 2021, the budget for the disposal of three types of waste was 21.72 million.

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<th>Water Savings Comparisons</th>
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<th>Dry Cleaning Water</th>
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<td>B732</td>
<td>30,000 liters</td>
<td>60 liters</td>
</tr>
</tbody>
</table>

Waste Gas Treatment

- The Company's senior managers directed its engineering staff to construct glass fiber secondary purification filters which featured honeycomb activated carbon adsorption purification devices, bag filters and other treatment facilities. The generated waste gas was collected and treated and discharged after reaching specific standards.

In accordance with the "Water Pollution Prevention and Control Law of the People's Republic of China" and the "Air Pollution Prevention and Control Law of the People's Republic of China" and other regulations, China Southern senior managers formulated a work plan for pollution prevention and control, and issued the "China Southern Group's 2021-2025 Plastic Pollution Control Work Plan" for staff to handle production and domestic waste in compliance with regulations, fully promoted the control of plastic pollution, and continuously improved pollution prevention and environmental protection management plans to reduce environmental impact.

Waste Water Treatment

Production Waste Water

The sewage treatment system facilities using "the "al separation + air flotation + sedimentation" treatment process was used for production waste water treatment. According to the requirements of the Company’s environmental impact assessment, qualified testing units were hired to conduct sampling tests and the water could be discharged after reaching specific standards.

- The included disinfecting medical waste water generated during the COVID-19 pandemic and made a third-party environmental sanitation testing agency to conduct monitoring to prevent environmental pollution caused by medical waste water.

- The Company set up industrial waste water discharge outlets in accordance with environmental protection regulations and installed monitoring equipment on sewage treatment equipment. Special personnel were responsible and operated environmental protection treatment facilities of the sewage treatment stations and tracked the sewage treatment volume in real time.

<table>
<thead>
<tr>
<th>Water/Waste Water Treatment</th>
<th>Water/Waste Water Volume</th>
<th>Dry Cleaning Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Waste/Water Volume</td>
<td>Dry Cleaning Water</td>
</tr>
<tr>
<td>A787</td>
<td>100,000 liters</td>
<td>400 liters</td>
</tr>
<tr>
<td>A736</td>
<td>30,000 liters</td>
<td>60 liters</td>
</tr>
<tr>
<td>A122</td>
<td>30,000 liters</td>
<td>60 liters</td>
</tr>
<tr>
<td>A123</td>
<td>60 liters</td>
<td></td>
</tr>
<tr>
<td>A131</td>
<td>60 liters</td>
<td></td>
</tr>
<tr>
<td>B707</td>
<td>50,000 liters</td>
<td>200 liters</td>
</tr>
<tr>
<td>B717</td>
<td>50,000 liters</td>
<td>200 liters</td>
</tr>
<tr>
<td>B757</td>
<td>50,000 liters</td>
<td>200 liters</td>
</tr>
<tr>
<td>B712</td>
<td>30,000 liters</td>
<td>60 liters</td>
</tr>
<tr>
<td>B747</td>
<td>100,000 liters</td>
<td>400 liters</td>
</tr>
<tr>
<td>B732</td>
<td>30,000 liters</td>
<td>60 liters</td>
</tr>
</tbody>
</table>

Medical Waste Water

- Issued the "China Southern Group 2021-2025 Action Plan for Plastic Pollution Control" and formulated the goals and task arrangements for plastic pollution control and carried out the target management plans.

- By the end of Year 2021, China Southern Airlines had stopped all use of single-use non-degradable plastic straws, stirring sticks, mini cups, sets, and packaging bags in terminals, lounges and domestic passenger flights.

- There were 260.8 cubic meters of waste gas treated during Year 2021.

<table>
<thead>
<tr>
<th>Medical Waste Water</th>
<th>Tonnage</th>
<th>Rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated</td>
<td>12,987</td>
<td>83.9%</td>
</tr>
<tr>
<td>Treated</td>
<td>93,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

- The generated waste gas was collected and treated and discharged after reaching specific standards.

<table>
<thead>
<tr>
<th>Industrial Waste</th>
<th>Tonnage</th>
<th>Rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
According to the requirements of the Law of the People’s Republic of China on the Prevention and Control of Noise Pollution, China Southern organized a meeting on December 31 to start the noise pollution prevention and control work and discuss how to manage noise pollution. This included:

- Investing in the construction of noise control infrastructure and controlling noise emissions in strict accordance with national standards,
- Introducing a low-noise fleet, equipped with high-performance engines and narrowing the noise trajectory.

Advising Green Environmental Protection

"Dual carbon leads green flight; plastic limit starts from me" was the theme activity of National Energy Conservation Publicity Week.

Case | Launch of a Series of Themed Flights of “Biodiversity Conservation”

The 15th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP15) was held in Kunming from October 11 to 15, 2021.

From September 26th to October 17th, China Southern, together with the China Environmental Protection Foundation, held a series of themed flights on “Biodiversity Conservation” from Beijing to Kunming, providing channels and platforms for the public to understand COP15’s biodiversity knowledge, and participated in biodiversity conservation practices to further enhance public awareness of ecological civilization and environmental science literacy which added in guiding and mobilizing all sectors of society to participate in biodiversity conservation, and created a good public opinion atmosphere for the successful holding of COP15.

Case | Holding the first aviation environmental protection exchange meeting of Chinese mainland airlines

On May 7, China Southern and IATA North Asia jointly held the first aviation environmental protection exchange meeting for Chinese mainland airlines with 50 key decision makers from mainland airlines and related institutions in attendance. Important international topics such as "The Transport Industry and Carbon Market" and "Sustainable Jet Fuel" were shared and discussed. At the meeting, China Southern representatives focused on sharing work experience in energy and environmental protection, such as strengthening top-level design, issuing guidance, identifying six major areas of airline environmental protection, promoting 10 important tasks, and proposed version on reduction targets to IATA and ad propulsion to formulate two environmental protection work proposals.

The conference provided a solid communication platform for China Southern Airlines to play a positive role in promoting the internationalization process of mainland Chinese airlines and assist other Chinese mainland airlines to learn more about and participate in the formulation of international carbon market rules.

Case | Non-Hazardous Waste

Staff and air crew collected paper towels, office and domestic waste and kitchen waste generated during flight activities in a centralized manner and handed them over to a professional management company qualified for recycling.

Hazardous Waste

This included the disposal process of waste disinfection, collectors, temporary storage, transfer and handover of waste to a professional management company to reach 100% harmless treatment of in-flight waste on international flights and key controlled flights.

- Compared to previous years, 704.903 tons of hazardous waste treated in maintenance increased by 24.47%.
- In-flight non-hazardous waste disposal volume of 11,063 cubic meters increased by 11.06%.

Noise Control

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- Introducing a low-noise fleet, equipped with high-performance engines and narrowing the noise trajectory.

Waste Disposal

Non-Hazardous Waste

China Southern Airline advocates a low-carbon and environmentally-friendly way of life and has implemented:

- Green office methods such as a “paperless office” setting
- Reasonable setting of air-conditioning temperatures
- Closed water taps
- Organized environmental protection public welfare activities
- Promoted industry exchanges
- Actively disseminated green and low-carbon concepts, and
- Worked in harmony with social stakeholders to protect green homes.

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- Compared to previous years, 704.903 tons of hazardous waste treated in maintenance increased by 24.47%.
- In-flight non-hazardous waste disposal volume of 11,063 cubic meters increased by 11.06%.
China Southern continues to adhere to the principle of "People's Airlines for the People" by creating a "friendly and refined" service brand that provided passengers with friendly and refined air-to-ground services, convenient passenger and cargo ground handling services, and projected the love of flight to every passenger.

Contributed to the achievement of the UN 2030 Sustainable Development Goals.
Guaranteeing Safe Flight Operations

The Company continued to market the construction of large-scale flight operations, uniformly allocating core resources such as transport capacity and flight crew, strengthened cross-departmental coordination and linkage, and improved information transmission and response speed. This included optimal flight operations that are linked to China Southern Airlines’ flight guarantees and focused on rapid rollout and response, internal and external coordination, quick stops, and flight delays to work in harmony in ensuring normal flight service.

China Southern has continued to promote its large-scale flight operations and carried out numerous projects to improve flight punctuality with operation efficiency increasing year by year as flight punctuality rate maintaining an industry-leading position.

Optimizing Flight Management

Launched Flight Regularity Enhancement Actions

Creating a Digital Work Platform

The Company created a large-scale operation digital work platform, continued seeking new and exciting ways to improve its independent research and development capabilities and technological innovation level of the operation system, launched applications such as flight dynamic inquiry, China Southern weather and flight tracking services, mobile apps, and China Southern weather and flight tracking capabilities which provide “real-time view” and “one-click” declaration of abnormal baggage, and worked tirelessly to create a “one-stop” convenient service for all forms of baggage.

China Southern provides passengers with a complete portfolio of smart travel services including ticket purchase, flight check-in, boarding, baggage refunds and modification services. It strives to offer passengers the best air travel experience.

Promoting Digital Work Platforms

China Southern has enhanced its inquiring channels to reach out to all passengers through the exclusive China Southern e-Travel app, mini programs, WeChat public account and SMS push and making the baggage transportation status completely transparent.

The Company also included oversized baggage to place a smartphone “palm view”, “real-time view” and “one-click” declaration of abnormal baggage, and worked tirelessly to create a “one-stop” convenient service for all forms of baggage.

Case: The First “Luggage to Home” Service was Launched in China

On July 28, 2021, China Southern senior managers launched the new “luggage to home” product at six airports specifically at Guangzhou Baiyun, Beijing Daxing, Shenzhen Baoan, Wuhan Tianhe, Chongqing Jiangbei, and Chengdu Shuangliu International Airports, becoming the first company to provide “luggage door to door” baggage service and the first to launch the “air-subway” baggage intermediary service.

Through the China Southern mobile app, WeChat official account and other social media channels, the Company actively pushed the visibility of the baggage process to passengers. “Luggage to Home” is a logical extension of China Southern’s transparent baggage-tracking service which further enriches the civil aviation baggage transportation service model and brings a more efficient and convenient new baggage service experience to passengers.

Smart Travel

Smart Baggage Service

- Baggage transportation error rate decreased by 6.15% year-on-year
- Guangzhou + Beijing hub transfer baggage missed rate of 9.85% is 6.00% lower than the average level of civil aviation
- The passenger coverage rate of smart baggage service was approximately 70%
- The passenger coverage rate of smart baggage service was approximately 70%
- The full process baggage tracking function has served passengers’ baggage more than 100 million times
- More than 90% of routes now offer baggage trading services
- The full process baggage tracking function has served passengers’ baggage more than 100 million times
- The information access rate of the whole baggage process was 71%
- The passenger coverage rate of smart baggage service was approximately 70%
- The passenger coverage rate of smart baggage service was approximately 70%
- The full process baggage tracking function has served passengers’ baggage more than 100 million times
- The passenger coverage rate of smart baggage service was approximately 70%
“One ID” Travel Service

In conjunction with Guangzhou Baiyun International Airport, the “One ID” full-process face-scanning travel service was launched in which passengers no longer needed to present their ID cards, boarding passes or QR codes. Self-service check-in and other services propelled China Southern Airlines to a new stage in digital and contactless passenger check-in.

Note: Due to the needs of COVID-19 pandemic prevention and control, the face-scanning service was temporarily suspended during self-check-in.

“China Southern e-Travel”

“China Southern e-Travel” integrated the upstream and downstream industry resources of air travel, covering service needs such as “in-flight cuisine, accommodation, ground transportation, entertainment and shopping”, and provided passengers with exceptional door-to-door services; launched the “On-demand channel ticket refund function in seconds” on domestic routes, realizing “no restrictions on the place where the ticket was purchased, rescheduled processing in seconds, and refunds arriving in seconds”, providing convenient services for passengers traveling during the COVID-19 pandemic.

AI Intelligent Customer Service Platform

China Southern’s intelligent “robot” customer service system was built to accurately perform semantic analysis, intention judgment and question-and-answer searches to realize a full robot anthropomorphism and dialogue interaction with passengers, guiding air travel consultation and handling services which ultimately improved service efficiency.

The number of visits to the intelligent customer service platform exceeded 7.3774 million

6.4341 million

Awards

- Awarded as “2021 Excellent Case of Jointly Building a Community of Shared Future in Cyberspace”
- Earned the “Top Ten Innovative Projects” Award of the Central Enterprise E-commerce Alliance
- Captured the “Enterprise Informationization Construction Innovation Achievement” Award
- Won the first prize of “National Transportation Enterprise Management Modernization Innovation Achievement”
Providing Warm Service

China Southern continues to focus on its service concepts of “warm service, heart touching,” by building a large service pattern of “affinity and refinement, perfect system, synergy and efficiency, intelligence and precision, and value-driven,” continuously making upgrades to its service quality, accelerating the construction of China Southern’s ecosystem, and optimized the travel experience of special needs passengers.

Upgraded Quality Service

Centering on the value concept of “customer-centric,” China Southern is focused on providing warm and attentive service and regularly carried out staff training to improve its customer experience by empowering frontline staff. To meet these goals, China Southern created and delivered six exclusive service brand business cards, including:

- “Customer Exclusive” Business Card (exclusive account manager providing one-stop exclusive service)
- “Luggage Privacy” Business Card (full process baggage tracking, online baggage service, door-to-door service)
- “Transit Enjoy” Business Card (transit butler service)
- “Warm Service 360” Business Card (two-class high-end full-service)
- “Food Fashion of China Southern” Business Card (in-flight cuisine concepts such as “Nutrition and Health” and “Hometown Taste”)
- “Luggage Privilege” Business Card (full-process baggage tracking, online baggage service, door-to-door service)
- “Customer Exclusive” Business Card (exclusive account manager providing one-stop exclusive service)

At this intersection of fighting back against COVID-19, the entire China Southern Airlines team stood tall to protect people’s life safety by improving its brand of affinity and refinement so that passengers can enjoy the Company’s warm and harmonious service during every flight.

Case | National Nutrition Week


China Southern attaches great importance to the nutrition and health of passengers’ in-flight meals, and the On-Demand Daxing cuisine introduced by China Southern such as large bowls of porridge and four-season health soup was widely welcomed by passengers.

Case | Immediate Domestic Ticket Refunds

During Year 2021, China Southern realized the automatic processing of domestic passenger tickets sold through all channels could be self-refunded and changed through the official airline channels. This new flexible configuration function improved passenger options as throughout the year, more than 17.16 million passengers were provided with online self-service refund and correction services.

Nearly ninety percent of all ticket refunds were shortened from the original three days - a new industry standard.

Case | Launch of the Tourism Product “Happy Travel in China”

On October 8, 2021, China Southern’s “Happy Travel in China” product, with the theme of “embark right, check in to a beautiful China” provided passengers with a variety of new travel products to maximize their travel plans.

Building China Southern Airlines’ Ecosystem

China Southern senior leaders took advantage of the Company’s main business brand and customer scale to build new platforms with new airline partners that jointly created new opportunities to promote the implementation of China Southern’s ecosystem strategy and provide passengers with one-stop travel solutions.

The Company built a multi-party cooperation platform to achieve precise interaction of customers, products and data in the ecosystem.

This included expanded upstream and downstream partnerships, expanded cooperative enterprises around customer needs and offered customers with new air travel options.

Cooperated with partners to bring in streams of new customers, continuously enhance customer relationship, and gradually increase income from the main business, fulfilling all these cooperated goals.

Worked to meet the travel needs of customers with an integrated flow of information about new Company products.
Serving Special Needs Passengers

China Southern senior leaders paid great attention to the travel needs of people with a disability and upgraded the “age-friendly” barrier-free access during flight boarding and disembarkation which included personal document inspection and inquiries for special needs passengers such as unaccompanied minors and the elderly. This included the launch of a new “customers service guidance” and other convenient service products to meet the travel needs of people with a disability.

Special Needs Travelers

Air travel for seniors, children, unaccompanied minors and people with a disability is something that families always care about. China Southern is focused on People’s “urgency and worries” and fully practice the concept of “serving the people wholeheartedly” with emphasis on the travel needs of special needs passengers by paying attention to every service detail and provide personalized services to make travel more convenient.

Focusing on the requirements and needs of people with a disability, the airlines provide personalized services to make the travel experience easier and more convenient. The company has also set up special staff to provide services such as health code inspection, ticketing, check-in, ticket service, priority boarding and baggage inquiry.

In addition, the airlines have upgraded the “age-friendly” project of “Guide Dogs in the Air” to make the journey of visually impaired people more convenient. The company also developed cooperation with the guide dog base to gain an in-depth understanding of the work and habits of guide dogs, and created a charity service project of “Guide Dogs in the Air” making the journey of visually impaired people more convenient.

Practicing the Original Intention and Doing Good Work

SPECIAL PLAN

Caring for Special Needs Travelers

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The Company pays the utmost care to its senior passengers and have created special service counters just for them! The “Notice on Doing-a Good Job in Facilitating Travel Services for the Elderly” was issued, requiring all working staff to set up service counters for senior passengers to provide services such as health code inspection, ticketing, check-in, ticket service, priority boarding and baggage inquiry.

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Stakeholder Voices

“Mr. Su, passenger

“Thanks to China Southern Airlines for helping me and my wife change our booking, and the follow-up flight has gone smoothly!”

“Mr. Su, passenger

Parents can apply for and purchase air tickets for unaccompanied minors through the China Southern app, website and other electronic channels and can filled as on-line tools such as page zoom, voice link reading and support screen reading tools to solve the difficulty of using intelligent information technology for senior passengers.

Enhancing the Travel Experience of People with a Disability

During the COVID-19 pandemic, hand sanitizers were provided at all check-in counters for unaccompanied minors as well as at the rest area within the security check area. Hand disinfection and guidance assistance were implemented in the three links of check-in, waiting and boarding by specialist designated personnel.

During check-in, parents were reminded to prepare their children’s anti-pandemic supplies and oversized luggage was checked to ensure that children could travel without concerns. Also at the security check area and during flight boarding, unaccompanied minors were guided to use the special airport passenger security check channels and take advantage of exclusive waiting area for people with a disability and priority registration service channels to quickly board their flight.

Upgrading “Age-Friendly” Barrier-Free Barriers

The Company upgraded the ticketing service for senior travelers and for those who are not familiar with new smartphone technology, China Southern staff was always on hand to offer assistance.

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Maintaining Customer Relations

Throughout Year 2021, China Southern earnestly protected the rights and privacy of all its customers, unblocked passenger feedback channels and carefully listened to customers’ voices. This feedback included actively promoting after-sales service for refunds and changes and managing customer complaints in a timely manner to maintain a good relationship with all customers.

China Southern senior managers established a complete information security mechanism and passenger service evaluation system, collected passengers’ opinions through multiple channels and directed staff to handle customer complaints in a timely manner.

Customer Privacy Protection

China Southern attaches the greatest importance to the protection of passengers’ personal information and encouraged all members of the Board of Directors to actively participate in customer data protection as well as concrete steps to ensure customer privacy and security through institutional guarantees, technical precautions and information auditing.

Passenger Rights Protection

The Company’s board-level committee attached great importance to network security and in Year 2021 established a network security and technology informationization leading group, headed by the Company’s executive director, who regularly participated in and continually guides work related to privacy protection and data security.

Handling Customer Complaints

In order to improve the travel experience, China Southern staff has compiled a collection of complaint cases and established an “early-warning” mechanism that allowed for providing services and managing complaints by actively responding to refund requests and air travel changes during the COVID-19 pandemic.

The Company established a special project team that provided a new automatic refund and change service and efficiently responded to passengers’ needs to improve the overall customer experience. The general score of the Bureau’s complaint management and control throughout the year was the best among China’s three major airlines.

China Southern Airlines continually seeks the satisfaction of its travelers and the feedback of passengers’ perception is of key importance. The Company attaches great importance to customer experience and dynamically tracked and analyzed passenger satisfaction in real time to learn how to consistently improve its services.

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Customer complaint rate
China Southern senior managers accelerated the pace of innovation in its freight/cargo products, provided multi-channel and intelligent freight transportation to meet the rising demand for high-quality air logistics of China’s mid-to-high-end manufacturing industries, and concurrently fully guaranteed the global transportation service of China’s COVID-19 vaccines and intelligent freight transportation to meet the rising demand for high-quality air logistics of China’s mid-to-high-end manufacturing industries, and concurrently fully guaranteed the global transportation service of China’s COVID-19 vaccines and intelligently developed a smart cargo terminal. In this way, the air cargo terminal could be fully digitized and the apron operation, vehicle operation, and the apron were realized. Customers could take advantage of the entire cargo process operation and process record of the cargo station and the apron were realized. Customers could take advantage of the entire cargo process operation and process record of the cargo station.
Innovation and Efficiency - Setting Sail for a Prosperous Future

04

China Southern continued to improve its management level, ensured the preservation and appreciation of state-owned assets, deepened cooperation with the government, enterprises, suppliers, etc., and joined hands with all parties to promote the sustainable development of the aviation industry and promote the Company to steadily move towards a prosperous future.

Contributed to the achievement of the UN 2030 Sustainable Development Goals
Compliant and Stable Flight Operations

Risk Management

China Southern senior managers insist on operating in compliance with laws and regulations, continuously deepening the construction of the rule of law that benefits the people. The Company ensures the airline’s management system’s risk management and control to conduct deep-government construction and supervision. This in turn adds the airline’s intellectual property protection, and carried out in-depth cost control work to ensure the stable operation of the Company.

China Southern has always adhered to the goal of “strengthening internal control, preventing risks, and promoting compliance.” China Southern has constituted a “Three Lines of Defense” Risk Management Mechanism. This mechanism was firmly built on the basis of risk prevention and control, strictly controlled the legal review of major business decisions, paid close attention to the risk prevention and control of major projects, and created a comprehensive, all-staff, full-process, and full-system prevention and control mechanism.

Perfecting Risk Management Systems

The Company formed a “1+N” risk control compliance management system that was supported by a series of management regulations, with the “Comprehensive Risk and Internal Control Management System” as the guideline, the “Implementation Measures for Internal Control System Evaluation”, “Comprehensive Risk Management Regulations”, “Internal Control Management Regulations” and “Legal Operation and Investment Responsibility Investigation Implementation Measures” as its pillars.

Building a “Three Lines of Defense” Risk Management Mechanism

This required the Company to establish a comprehensive risk management system, the “Three Lines of Defense” Risk Management Mechanism. The highest decision-making body for risk control management was the Company’s Board of Directors, responsible for the establishment, improvement, and effective implementation of the Company’s risk control system and mechanisms.

Top-Level Decision-Making Risk Prevention and Control Processes

The Company implemented the “Three 100%” comprehensive review requirements of the SASAC by streamlining the work process, reviewing requirements, and embedding legal reviews into the Company’s operation and management processes to achieve the deep integration of legal review and business management.

Anti-Corruption

China Southern concurrently implemented the deployment of the Fifth Plenary Session of the 19th Central Commission for Discipline Inspection and the requirements of the SASAC Party and government construction and anti-corruption work conference. In this year’s uplift and the leadership team to pay special attention to the focus of supervision, insisted on “do not dare to be corrupt, cannot be corrupt, and do not want to be corrupt, creating a clean and upright atmosphere.”

The Company issued relevant systems to rectify “four bad styles”, and carried out a special survey on “implementing the spirit of the eight central regulations to correct the ‘four bad styles’ and create new working style.” These actions served to improve the discipline inspection, supervision and supervision system, and cleaned up the bad rules and practices in the procurement system. The Company clarified its anti-corruption training requirements and categories through higher-level training, and self-organized training and expert teaching.

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China Southern attached great importance to intellectual property protection, continuously improved relevant systems, trademark management, and provided a firm guarantee for intellectual property protection.

### Intellectual Property Protection Systems


### A Complete Trademark Management System

Based on the trademark management system of "centralized examination and approval and decentralized management," the Company has formulated standardized trademark management measures, clarified the specific operation methods and procedures for trademark registration, use, management, and protection, and assigned full-time and part-time trademark management personnel to provide organizational guarantee for trademark management, which effectively enhanced the brand value of China Southern.

### Intellectual Property Protection

- **Trademarks:**
  - 0 trademark infringement incidents in 2021
  - 65 new authorized trademarks (an increase of 80% year-on-year in 2020)
  - Accumulated effective patents reached 318

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  - 65 new authorized patents
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### Full-Process Management Mechanism for Medium and Long-Term Resource Investment

- **Build a Lean Cost Control System**
- **Building Five Mechanisms**
  - Lean Flight Decision Support Mechanism
  - Lean Procurement Mechanism
  - Lean Flight Control System Mechanism
  - Building Five Lean Cost Projects to Implement
  - Lean Flight Resource Management

### Lean Cost Control

China Southern senior managers have resolutely fought the tough battle of "establishing a long-term mechanism for lean management and control of costs" by establishing a sustainable cost competitive advantage which continuously improved the level of refined management.

### A Long-Term Mechanism for Lean Cost Control

China Southern Airlines stays close to the concept of "all costs can be reduced" by focusing on the Company’s revenue sources as well as structural and strategic cost issues through the establishment of five mechanisms. The Company carried out five lean cost projects, built a lean cost management and control system which favored cost reductions to gradually established costs comparative advantage.

### Creating a Golden Idea Benefit Project

The Company carried out a special activity entitled the "Building Golden Idea Benefit Project" which projected deeply into core aviation resources to extend the industrial service chain as staff worked diligently to generate income, and extensively collected "golden ideas" such as measures, suggestions, and typical case studies to increase income and reduce expenditures. A total of 2,342 "golden ideas" were collected, and 1,120 "golden ideas" were implemented that directly helped improve operational efficiency.

### Resource Integration and Business Cooperation

During Year 2021, China Southern created and delivered:

- The aviation medical identification center
- Financial sharing center
- Housing management department
- Comprehensive business center, and
- Employee service center that actively organized and integrated internal resources, coordinated and contacted external units through multiple channels and cooperated for resources and business cooperation to generate income.
Sustainable Supply Chain

Responsible Procurement

China Southern adhered to responsible procurement and continued to improve the supplier management mechanism that promoted suppliers to fulfill their own Corporate Social Responsibilities and built a sustainable supply chain.

Green Procurement

China Southern Airlines kept its commitment to purchase “green” materials. According to the “China Southern Group’s Management Standard for Prohibition and Restriction of Disposable Plastic Products,” the airline company formulated a bidding process for the procurement of disposable plastic materials and implemented a bonus point system for suppliers using degradable and environmentally friendly materials during the procurement process to guide bidders to use new environmentally friendly materials and use the gradual replacement of degradable materials.

The significantly clarified the standardized procurement measures. Airline officials actively responded to the deployment of the Group’s plastic pollution prevention and control reform and invited a number of suppliers to its Guangzhou Headquarters to discuss the use of specific items such as degradable rags… as well as seeking government support for the development of workable plastic pollution control solutions for the gradual reduction of plastic pollution.

China Southern strictly abided by the state as well as the Company’s own management regulations on tendering and non-tendering procurement to ensure that procurement activities were conducted in a fair, just and open format. The Company actively cooperated with the implementation of the government’s policy requirements on optimizing the business environment in an effort to safeguard the legitimate interests of the Company’s purchasers and bidding suppliers in accordance with laws and regulations. Airline officials consciously strengthened the supervision, inspection and management of procurement business with emphasis on developing special training on legal risk prevention of procurement contracts that was implemented for honest procurement contract by adhering to green procurement that built a sustainable supply chain.

Promoting the Tenure System and Contractual Management

The airline completed the formulation of its tenure-based assessment plan and sign of contracts for key units, with a coverage rate of 95% of tenure-based contractual management contracts.

Promoting Competitive Induction and Final Adjustments

China Southern deepened the reforms of its cadre personnel system. Among the newly appointed management cadres (74% of the newly appointed cadres were recruited through competitions and appointed specifically for employment at 73% of the cadres, directly under the management of the party organization), the new Electing China Southern completed the reforms of its internal institutions of the functional departments of its Guangzhou Headquarters. All management personnel of the functional departments of the head office, the fast-track management cadre team, the second-level management cadre team, and the management personnel with contractual management were reduced to 65%, 55%, and 45% respectively.

Promoting the Reform of Maintenance Management Systems and Mechanisms

China Southern senior officials were assigned to promoting the reform of the maintenance management systems and mechanisms to establish an engineering technology branch, and deeply and widely available integrate maintenance resources. In accordance with the development direction of “marketization, integration, industrialization and internationalization”, China Southern established a market-oriented operation mechanism, integrated maintenance resources, reformed and standardized maintenance management systems, and established a market-oriented management system to promote the high-quality development of the maintenance industry.

China Southern Shares in Enhanced Risk Prevention

China Southern Airports Co., Ltd., Engineering Technology Branch was officially established on September 15, 2021. The Engineering Technology Branch was officially established on September 15, 2021.

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On September 15, 2021, China Southern Airlines Co., Ltd. Engineering Technology Branch was officially established, becoming the integrated operation and management entity of China Southern’s aviation maintenance business and a major measure in the implementation of China Southern’s maintenance reform. With Guangzhou Baiyun International Airport as the center, the Company has established maintenance bases in 18 large and medium-sized cities such as Beijing, Shanghai, … spanning more than 100 regional terminals and over 1,000 routes around the world and is committed to building itself into a pillar industry of the Company’s aviation maintenance business.

China Southern has solidly promoted a three-year action for the reform of state-owned enterprises, implementing the “Two Consistency” principle, and exceeded the planned three-year action task of the reform of state-owned enterprises by more than 10% ahead of schedule. These positive efforts served to strengthen the construction of governance bodies, promoted the tenure system and contractual management, carried out the benchmarking of world-class management improvement actions, promoted construction for employment, final adjustment and incomerotic out, upgraded the assessment system and steadily promoted the maintenance reform to inject development momentum into the enterprise.

China Southern vigorously strengthened the cadre personnel system reform, set up a comprehensive cadre personnel management system for the group’s shares and standardized the procedures and channels for the party group’s cadre personnel management, and established a cadre personnel management database. Concerted efforts were made in the personnel selection and hiring of personnel, and the selection of cadre personnel was fully transparent, with more than 70% of newly appointed management cadre personnel being openly selected for employment. The cadre personnel were transparently and uniformly selected for employment as 7.6% of the cadre personnel, directly under the management of the party organization.

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China Southern’s engineering technologies were fully supported for employment, final adjustment and incomerotic out, upgraded the assessment system and steadily promoted the maintenance reform to inject development momentum into the enterprise.
Pushing Suppliers to Fulfill Their Responsibilities

- Economic contract performance rate of 100%
- The number of suppliers whose cooperation has been suspended due to unqualified Corporate Social Responsibility was 0
- The number of suppliers included in the ‘List of Seriously Illegal and Untrustworthy Enterprises (Blacklist) Information’ in business activities was 22
- The total number of suppliers HeadHaul 21,636

During Year 2021, China Southern continued to promote the construction of a supplier management system, standardized supplier management and clarified its management requirements such as supplier storage, graded use, evaluation and rating and promoted suppliers to fulfill their own Corporate Social Responsibilities.

Supplier Selection
The Company established - and later improved - the standards for the selection of suppliers of varied categories, realized a closed-loop management process of product quality through the three-acceptance blocks of factory inspection, optimization and improvement and delivered production, and evaluated suppliers according to the acceptance data.

Supplier Hierarchy Management
The number of suppliers was suspended due to unqualified Corporate Social Responsibility.

Supplier Performance Assessment
The Company centered on the dimensions of ‘business, technology, delivery, quality and service’ and other dimensions to carry out dynamic assessment and evaluation of contracts, acceptance, payments and after-sales implementation stages for project transaction suppliers to realize information-based dynamic evaluation to improve the supplier’s ‘quality fly’.

Supplier Capacity Improvement
Under the drives of intensive COVID-19 restrictions, airline directors communicated regularly with suppliers through video conferences, website presentations, online questionnaires, text messages and other social media methods. The China Southern Procurement and Tendering website released the ‘Notes on Preparing Bidding Documents’ to standardize the preparation of suppliers’ bidding documents and reminded them of common mistakes in bidding which aided in improving suppliers’ capabilities.

Supporting Regional Development

- Serving the Development of the Guangdong-Hong Kong-Macao Greater Bay Area
  - The Company further expanded China Southern’s origin route network in the Greater Bay Area and opened new routes from Guangzhou to Wuhan/Xi’ An, Xining/Dunhuang/ Jinchuan, Chengdu/Chongqing, Jiuzhai/Yibin/Shangrao, and opened new routes from Chengdu/Chongqing/ Ankang/Diqing/Dunhuang/ Zhangjiajie and Shenzhen to Guangzhou to Wuhu/Heze/ Anshan.
  - China Southern further strengthened exchanges and relationships between domestic and foreign industries and shared development results with other regions.

The Integrated Construction of the Yangtze River Delta
An in-depth study of the overall design and framework structure of China Southern’s ecosystem construction is the determination to build the Yangtze River Delta ecosystem project with the three major starting points of China-Fessen system construction – namely customer systems and service process construction. Airlines carried out ‘demand collection, service confirmation, ticket booking, service guarantee, feedback collection’, a critical five link belt that provided strong support for the construction of the Yangtze River Delta ecosystem.

Increasing Investment in Transport Capacity
- In a concentrated effort to enrich the Bay Area Pass product system, China Southern focused on the travel challenges of passengers in the Bay Area such as origin airport pick-up and light rail products. The airline added specific marketing products such as hotel coupons, dining coupons, valet parking, and other products to meet the needs of high-value members in various travel scenarios.
- The Company likewise upgraded the flexible change products available to passengers in the Bay Area and enabled travelers to freely change their travel time and destination on the 30 main business routes of Guangzhou, Shenzhen and Zhuhai.

Optimizing Passenger Services
- The Company opened self-service check-in kiosks at ticket offices directly under the auspices of China Southern Airlines in Guangzhou as well as launching passenger and baggage check-in services at the terminal buildings of 10 major cities throughout the Pearl River Delta.
Innovation and Efficiency - Setting Sail for a Prosperous Future

2021 Corporate Social Responsibility Report of China Southern

Promoting Domestic and International Dual Circulation
China Southern senior managers directed the construction of an aviation hub to support the new development pattern of domestic and international dual circulation. The new Beijing Daxing International Cargo Terminal relies on China Southern’s significant domestic and international route network to establish a global cargo transportation network. At present, cargos can be transported to major domestic destinations including Guangzhou, Shanghai and Shenzhen… as well as international destinations such as Amsterdam, London and Dusseldorf through China Southern Airlines’ belly cargo and dedicated freighter route network.

Promoting Industry Development
Throughout Year 2021, China Southern actively participated in industry exchanges and furthered cooperation with government, enterprises and universities, and joined hands with aviation partners around the globe for win-win development to jointly promote the continued growth of China’s aviation industry.

Serving the Construction of Hainan Free Trade Port
The Company signed a strategic cooperation agreement with the Hainan Provincial Government to jointly carry out multi-field and in-depth cooperation that focused on the key directions of Hainan Province’s economic development and the active participation in the construction of the Hainan Free Trade Port. These efforts increased transport capacity and overall investments in domestic and foreign airline networks which also increased upstream and downstream investment in the aviation industry.

Case | China Southern Service Supporting Hainan Consumer Fair
On May 7, the first Consumer Expo was opened in Haikou, Hainan. China Southern provided “Immetry and Refinement” Chinese-style boutique services for the Consumer Expo and exhibitors to ensure the smooth opening of the Consumer Expo. It was an important measure for China Southern to serve the national strategy for and construction of the Hainan Free Trade Port and help the national recovery from COVID-19 and growth of the international community.

Case | Participating in the 4th CIIE
On January 6, at the signing ceremony of the China Southern Group’s trading sub-group at the 4th China International Import Expo, or a “core supporting enterprise” and “destined air carrier”, China Southern senior managers signed purchase agreements with 14 large-scale international manufacturers and suppliers in the global aviation service field to further the innovative platforms, China Southern again took the industry lead in building a big data platform, accelerating the application of new technologies such as cloud computing, big data, artificial intelligence and blockchain use to establish the Pearl Innovation Studio and organized the “five small” innovation work.

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Case | Participating in the 13th China Airshow
On September 28, the 13th China International Aviation and Aerospace Expo opened at the Zhuhai International Air Show Center in Guangdong. As the official strategic partner and special air carrier of the 2021 China Air Show, China Southern displayed its first painted aircraft jointly painted with the Zhuhai Municipal Government, vividly illustrating the Guangzhou–Beijing “Dual Hub” and China Southern Great Bay and Beijing Daxing district, as well as China Southern’s “ecosphere” “green flight” and other key brand projects. China Southern officials also signed a number of cooperation agreements with domestic and international partners to support the aviation industry.

Case | The First Batch of National Industry-Education Integration Enterprises
On July 22, 2021, the National Development and Reform Commission and the Ministry of Education jointly announced the list of industry-education integration enterprises and pilot cities for integration of industry and education. China Southern became one of the first 63 companies to enter the list, and was the only company in the air transport sector to successfully make the list.

To actively deepen school-enterprise cooperation, the Company contracted with 20 colleges and universities to carry out 24 training projects spanning professional positions such as pilots, flight attendants, and maintenance personnel.

When focusing on building innovative platforms, China Southern again took the industry lead in building a big data platform, accelerating the application of new technologies such as cloud computing, big data, artificial intelligence and blockchain use to establish the Pearl Innovation Studio and organized the “five small” innovation work.

The Company further explored the whole chain integration system by creating and delivering the China Southern Guangzhou Industry-Education Integration Training Base and China Southern’s North China Industry-Education Integration Training Base with emphasis on the establishment of a “production-based, training at the core and the ‘use’-oriented innovation service chains.”
China Southern adhered to people-oriented, attached great importance to the growth and development of employees, carried out social welfare activities based on its own professional advantages, enthusiastically gave back to the society, helped rural revitalization, and joined hands with all sectors of society to create social value and set sail for a bright future.

Contributing to the achievement of the UN 2030 Sustainable Development Goals
Helping Employees Flourish

China Southern senior leaders worked diligently to protect the legitimate rights and interests of all employees in accordance with the law, helping to improve their professional skills while providing a broad development stage for employees to balance their work and life and help employees realize their professional value.

Employee Rights

China Southern strictly abides by national labor laws and regulations, providing diversified and equal opportunities, avoiding forced labor and prohibits child labor while improving salary and welfare guarantees. The Company also expounds on its democratic management with comprehensive inspections and investigations on violations while respecting and protecting the privacy rights of all employees and fully protected their rights and interests.

Employee labor contract signing rate reached 100%

3,976 new employees recruited

697 foreign employees

Employee Training Coverage per Person

- Male: 46,079
- Female: 34,374

Training Time - Per Employee/hour

- Male: 81.65
- Female: 63.54

By Gender

By Professional Composition

Pilots: 11,305
Flight Attendants (including part-time safety officers): 21,216
Air Force Security Officers: 3,685
Maintenance System: 15,979
Flight System: 2,319
Passenger System: 7,887
Cargo System: 5,572
Ground Service System: 11,475
Information System: 1,786
Financial System: 1,782
Other: 15,000

The total number of employees is 98,098

By Region

Guangzhou: 25,167
Domestic (except Guangzhou): 72,029
International: 962

By Employment Type

High level: 772
Middle level: 8,422
Basic level: 72,059

By Age

30 and under: 38,941
31-40: 35,113
41-50: 17,985
51 and above: 6,059

12,839 working days lost by employees due to work-related injuries
Employee Development

Throughout Year 2021, China Southern was committed to the career development channels of all employees, building a "strategic, pioneering, and platform-based" training system. By carrying out training opportunities for its employees, the Company helped staff improve their professional skills to realize their personal value with additional services themed to internationally-posted staff with new opportunities to study in China as well as a wealth of available online training courses.

The Company completed the curriculum development of the "FTT Adjunct Faculty Training Enrichment Project" covering leadership, flight attendant, language and business courses. Standardized the management of the Company’s part-time teachers, and conducted training and assessments on flight attendant teachers, language teachers, and business teachers.

China Southern Airlines launched the first batch of management training programs and arranged for a global recruitment management trainee program. The first-time worldwide effort focused on management trainee competency models, assessment plans, training and development plans as well as improving Company supporting policies that enhanced the airline’s brand recognition of its new management trainee program.

Diversity and Equal Opportunity

Adhered to the employment of diversity and anti-discrimination and protecting the rights of foreign employees, China Southern Airlines senior leaders put forth and signed the "Special Collective Contract for the Protection of the Rights and Interests of Female Workers" during Year 2021 to ensure that the recruitment, assessment, promotion, promotions, evaluation of professional and technical positions, enjoyment of benefits and implementation of the nation's national retirement system.

The Company respects employees from different countries, regions, creeds, races, genders and educational backgrounds. While continuously developing its diverse business, China Southern Airlines is committed to the localization of its international market operations, and actively strive throughout Year 2021 to promote the training of local employees in overseas institutions and the localization of management talents, with a localized employment rate of 40%.

Salary and benefits

China Southern adheres to equal pay and benefits for equal work and established and improved its salary system, as well as a post-based salary scheme which strengthened salary incentives for key positions and high-level talents, and provided employees with market-based salaries. A series of special subsidy policies such as frontline subsidies, isolation subsidies, centralized management subsidies, and communication subsidies were introduced during Year 2021 and the standards for meals during COVID-19 isolation periods and the standards for considerations for qualified personnel have been clarified to help employees solve their difficulties.

In addition to honoring national statutory holidays, employees can also enjoy: Paid annual leave, Family visit leave, Marriage leave, Birthday leave, and female employees can take advantage of maternity and breastfeeding leave periods. Every year, China Southern provides employees with free health examinations, five paid insurance programs and two housing funds; supplemental medical insurance policies; upgraded multiple guarantees and a streamlined medical reimbursement policy. During Year 2021, the Company put forth a new supplementary medical insurance policy that increased the number of people covered by supplementary medical insurance to 123,000.

Democratic Management

Airline staff Regularly held employee representative meetings, "Printed" distributed a trial program entitled "Opinions on the Proposal Work of China Southern Airlines Group Employee Representative", studied and formulated the "China Southern Group Employee Representative 2021 Proposal Work Plan", Launched the "China Southern Employee Representative Proposal Work Platform", Actively carried out democratic management training courses, Organized and carried out inspections of employee representatives, Required employee representatives to inspect labor protection and employee rights collective contracts and the signing and implementation of labor contracts, and Continued to promote the democratic management of employees.

Employee Development

Training Type
Training Projects
Training Participants
Leadership Training Young and middle-aged class, Oohang flight, Hongmiao class 153 74
Special training courses on four major business systems 317
Training course for senior and deputy management cadres
Full-Cycle Cadre Training Party building training 580 821
Management training
Crew Training On-the-job training 37,021 2,312
Territorial training
Language Training Language training (including "Double Hundred English" programs) 1,158
Business Training Security Information Management Training Course 685
International Lecture Hall 673
Legal Lecture Hall 236
Cloud T Project 60
Exam-Appraisal Pilot English Test 2,780
Flight Attendant English Test 2,759
Flight Attendant and Security Check Skills Appraisal Theory Test 737
Flight Attendant and Security Check Skills Practical Test 1,304
Conducting Diversity Training

Moving Forward Hand in Hand - Setting Sail Toward a Wonderful Future

2021 Corporate Social Responsibility Report of China Southern
Caring for All Employees

China Southern senior leaders truly care about the health and welfare of all 100,000+ employees and directed staff to create and deliver various recreational and sports activities for employees and to enrich employees’ spare time. Concurrently, China Southern worked to strengthen the assistance available to female employees and employees facing varied challenges during the COVID-19 pandemic.

Work-Life Balance

Company directors focused on building the 1+e employee service system and shared service platform to improve the support facilities available in the flight crew dormitory area, adding new gyms and supermarkets as well as special catering services as well as varied cultural and sports activities.

Caring for Female Employees

To fully support all female and model workers, the Company senior managers directed staff to provide reading activities of “A Century of Dreams, Happiness Sailing - Scholarly 38” and participate in the national online legal knowledge competition for “Love Female Workers, Law is Aside” – which focused on the needs of pregnant and breastfeeding female employees who stuck to their posts throughout the COVID-19 crisis and worked together to solve time-sensitive issues for female employees.

Helping Needy Employees

The Company mobilized employees via the “Management Regulations of China Southern Employee’s Critical Illness Mutual Aid Fund” to voluntarily participate in the collection of critical illness mutual aid funds. These monies provided critical illness assistance services for critically ill employees, their spouses and children.
Air crews are one of the most important human resources of China Southern Airlines and “double-flying families” are a special group among them. Compared with ordinary families, they face many challenges and sacrifices. China Southern senior leaders have always attached the greatest importance to the harmonious construction of the “double-flying family.” During Year 2021, the Company has taken it as a key livelihood project of “I do practical things for the masses” by starting the “Flying Together, Kapok Concentric” care project. From completed information surveys, question collection, analysis and sorting, interviews and research, introduction of measures and other online formats of EAP group support structures came important family-centric projects, including: “Double-Flying Family Care Camp”, “Kapok Caring for “Double-Flying Family” , “Meet You - Fly Together” , “Double-Flying Family” Selection, The most beautiful “Double-Flying Family” Photo Exhibition, and A collection of family stories, as well as parent-child summer camps, seminars and condolences nearly 40 times, creating a good atmosphere of caring for “double-flying families”. This led to the issuance of the “China Southern Double Flying Family” Care Project.

The Many Voices of the “Double-Flying Family”

China Southern currently has 1,510 “Double-Flying Families” that involve 3,020 employees. Through e-mails and interviews, airline staff conducted extensive research on the outstanding difficulties of the “Double-Flying Family”, collecting a total of 101 questions in 23 categories in four aspects, including operation scheduling, vacation and rest, family support and service guarantee, and carried out 10 project investigations. At 21 territorial units, airline staff encountered 109 project problems, solved 79 territorialization challenges, held more than 50 work coordination meetings, interviews and research symposiums, and conducted 1,103 person-times interviews. All survey and interview results showed that scheduling, vacations and childcare were the most concerning issues for “double-flying families”.

Building a Normalized Care Mechanism

“Now, during the annual birthday holiday, parents or children’s birthdays can be used instead of their own birthdays. Female flight attendants (over the age of 45 or breastfeeding) can choose their own flight time limit within a certain range every month. The current system is more flexible than that of a decade ago.”

- Tang Minyuan, front-line employee

Senior Company officials set up a special project team which drafted a work plan and launched the “Flying Together, Kapok Concentric” project to solve specific issues and challenges.

Airline staff hosted “Double-Flying Family” project research meetings that allowed for the collection of discussions on operation scheduling, vacation and rest and effectively implemented the party organization’s care and concern for the “Double-Flying Family” and the air crew.
Contributing to a Harmonious Society

China Southern Airlines has actively leveraged its professional advantages to help rural revitalization and development, carried out special flight missions, enthusiastically participated in public welfare and charitable activities to actively meet and exceed its Corporate Social Responsibilities in the building of a harmonious society.

Rural Revitalization

China Southern Airlines has actively participated in the rural revitalization project of China Southern, as a responsible state-owned enterprise, continued to increase resource investment and through the formulation of the “China Southern’s Fixed-point Assistance Work Plan” the company clarified its overall plan to provide fixed-point assistance and assist rural revitalization.

During Year 2021, China entered a first year of full implementation of its rural revitalization strategy. China Southern, as a responsible state-owned enterprise, continued to increase resource investment and through the formulation of the “China Southern’s Fixed-point Assistance Work Plan” (the Company clarified its overall plan to provide fixed-point assistance and assist rural revitalization).

China Southern assisted thousands of residents of Pishan and Moyu counties through innovative industry support and job transfers that directly helped more than 21 thousand villages of China Southern’s villages and mores than 40,000 impoverished people out of poverty.

Adjusting the Organization

According to the requirements of the central government, China Southern senior managers established a fixed-point assistance work system, adjusted and optimized China Southern’s Fixed-Point Assistance Work Leading Group, and clarified its responsibilities, tasks, offices and rules of procedures, laying a firm organizational foundation for the targeted assistance and rural revitalization efforts.

New Revitalization Project

The Company directed an investment of 17.26 million in assistance funds to carry out 41 rural revitalization projects in Minyu County, Fohian County and other villages in Yangjiang which made positive contributions in the improvement of local living standards, consolidation of industrial development and improvements in educational curriculum.

Cadre Guarantee

According to the requirements of the Organization Department of the CPC Central Committee and the State-owned Assets Supervision and Administration Commission which rotated the deputy magistrates of Moyu and Pohian in two designated counties and dispatched new village-based work teams in North, Shanahan, Hunan, Guizhou, Chongqing and other branch companies to carry out a new round of counterpart assistance work.

Promoting “Three Steps”

Starting with the preparation of China Southern’s fixed-point assistance to rural areas, establishment of China Southern’s characteristic industrial ecosystem, the China Southern’s "Kapok Classroom" with emphasis on improving education, rural infrastructure construction and grass-roots party organizations that led to a rural industrial, talent, cultural, ecological and organizational revitalization.

Articulating "Three Steps"

The second stage of the China Southern’s strategy connected the rural revitalization work to rural construction actions and gradually realized the planned positive transformation from focusing on capital investment to management, cultural and idea output. Temporary and village cadres were changed from specific assistance to ideological tempering, quality improvement and spiritual guidance. The planned indicators were also changed from project-based formulation to integration into local long-term development plans.

The third stage was committed to creating a “hematopoietic” function that is to sum up experience and forming a long-term effect, with the “five revitalization” as the goal, gradually improving the long-term mechanism for poverty alleviation achievements, rural revitalization, publicizing and strengthening the influence of China Southern’s high-quality development and continuously deepening market concept, brand awareness and cultural concept contributing to the realization of the agricultural and rural modernization.

The cadres of China Southern’s village teams and local villagers in Pishan planted “Kapok Red” sweet potatoes together.
Practicing the Original Intention and Doing Good Works

SPECIAL PLAN

Cultural Assistance

During Year 2021, China’s poverty alleviation battle achieved many comprehensive victories. In accordance with relevant policy requirements of the State-owned Assets Supervision and Administration Commission of the State Council and the National Rural Revitalization Bureau, the China Southern Group, on the basis of completing the finishing work of poverty alleviation, began its fixed-point assistance work including “increasing targeted and characteristic cultural assistance, deepening poverty alleviation and promoting rural revitalization” into the first batch of list of key livelihood projects “I do practical things for the masses.” A series of cultural assistance activities have been carried out to effectively connect the achievements of consolidating and expanding poverty alleviation with rural revitalization.

Cultural Assistance Helping Thousands of Households

China Southern senior staff implemented a “Spread the Party’s Voice into Ten Thousand Homes” cultural assistance project, donated five million to purchase 5,677 TV sets, and evenly distributed them to households without TV sets in Muyu and Pishan counties.

Cultural Assistance Lighting up Primary Schools

The Moyu China Southern Pearl Primary School, constructed with an investment of 60 million, was officially opened for use on September 14 and welcomed 1,206 new students, which greatly met the educational needs of local students and academic degrees in Muyu County.

The Company directed staff to help set up a local dance team and choir in Bradekke Village, Xingjia, a new village-level library and the renovation of toilets and kitchens under a total investment of more than 2 million towards poverty alleviation in Xinjiang.

The Company supported the listing of Rural Revitalization Park in Guzao Town, Xingcheng City, Liaoning Province to build the park with features from local industries, education and training and the balanced rural lifestyle.

In the future, China Southern senior leaders will bravely assume the responsibility of a central enterprise, perfect the aviation-specific poverty alleviation model, effectively connect the consolidation and expansion of poverty alleviation achievements with rural revitalization, and evolve complete fixed-point assistance tools and make contribution to rural revitalization.

Case

Fully Supporting the National Rural Revitalization Vocational Skills Competition

The National Rural Revitalization Vocational Skills Competition was held from September 20 to 20 in Urumqi, Xinjiang Uygur Autonomous Region. In the early stage of the competition, China Southern staff worked hard to overcome the impact of the COVID-19 pandemic to contact the Xinjiang branch to open up a green channel and specially dispatched a group of workers to handle the logistics to ensure the smooth arrival of rescue materials in Henan.

Case

The Shenzhen Blue Sky Rescue Team on the Job in Henan!

On July 24, a group of 15 staff from the Shenzhen Blue Sky Rescue Team departed on the airline CZ5767 from Shenzhen to Henan Province to participate in flood relief. China Southern arranged special check-in channels and security check channels, priority checked baggage and guided the Team members to the boarding gate, securing the transportation of medical relief supplies including three helicopters and medical supplies and rescue equipment totaling 460 kilograms. In addition to providing complementary transportation services for public welfare goods, China Southern also opened a green channel and specially dispatched a ground services team to unload the rescue equipment upon arrival to ensure the smooth arrival of rescue materials in Henan.

Special Flight

During Year 2021, China Southern actively carried out special flight missions and used its aviation advantages to assume the responsibility of a central enterprise for the maintenance of social harmony.

Case

Escorting the Son of a Volunteer Veteran Back Home

The ancestral home of one very special volunteer veteran is Jieyang City, Guangdong Province. In 1951, he participated in the Volunteer Army’s entry into the DPRK and later returned home with honors after a harrowing escape from a brutal battlefield death. Later he again responded to his nation’s call to support the construction of the Great Northway and worked for the Luoyang Railway Bureau, Hanzhong City, Shaanxi Province until retirement. On February 19 this year, the old man passed away and in order to satisfy his dying wish to return to his hometown, his children decided to send his ashes back in Guangdong. On February 18, China Southern escorted the urns of this volunteer veteran from Hanzhong to his hometown in Shenzhen. The staff of China Southern were deeply moved by hearing of hero’s deeds for the Motherland. Airline staff sorted out all aspects of ticket purchase, check-in and boarding, and reached out to officials at Hanzhong Airport many times to provide seamless guarantees throughout the whole process, and assisted the families of the aged veteran to carry the ashes of the hero to board CZ3676 Hanzhong-Shenzhen flight “back home.”

Case

Encouraging the Son of a Volunteer Veteran Back Home!

“A big thank you to China Southern for terrific help so we could send our father, one of the volunteer army, back home to us” - Mr. Li, son of a volunteer veteran
China Southern met and exceeded the Corporate Social Responsibility of a substantial central enterprise by actively carried out numerous public welfare and charity activities, organized voluntary services, and gave back to the society with practical actions. During Year 2021, China Southern’s award-winning “Ten Fen” Care Foundation donated 100,000 yuan to the “Love Knows No Borders” international charity sale event of the Ministry of Foreign Affairs, and 10,000 yuan to the “Guangdong Province Let Love Go Home Public Welfare Promotion Association” that provides meaningful caring for children during distress.

China Southern Volunteer Association was awarded the “Four 100” Best Volunteer Service Organization in the National Learning from Lei Feng Volunteer Service in 2020.

Practicing the original intention and Doing Good Works

SPECIAL PLAN
Carrying out Diverse Youth Volunteer Service Projects

China Southern has thoroughly implemented the spirit of General Secretary Xi Jinping’s important instructions on learning from Lei Feng’s volunteer service by cultivating China Southern’s outstanding youth volunteer service projects where there was a positive atmosphere for volunteer service with service achievements that have inspired many young people to devote themselves to voluntary activities and contribute to the construction of a harmonious society.

Impressive Volunteer Service Platform

The China Southern Group Volunteer Service Steering Committee was established to issue relevant implementation opinions and guidelines for volunteer service and to continuously strengthen the organization, team, project, mechanism and cultural construction of China Southern Airlines’ volunteer service efforts.

Multidimensional Review

For the projects participating in the competition evaluation, the evaluation focused on six dimensions – “featured project content”, “standard project management”, “guaranteed project team”, “response to social evaluation”, “on-site display” and “response performance”.

Marketing the “Affinity and Refinement” Brand

The categories of projects included warm winter action, major transportation guarantee, volunteer service in peak season, civil aviation knowledge into campus and other volunteer service projects with the special “Affinity and Refinement” characteristics of China Southern, as well as projects in rural revitalization, environmental protection, large-scale competitions, emergency rescue and other aspects.

Promoting Information Management

The China Southern Group Volunteer Service Steering Committee also put forth efforts to market its volunteer service platforms such as Volunteer Exchange and i-Volunteer within the Company’s 100,000 staff and managers, and provided detailed information for volunteer registration, project development, and volunteer service time records.

Marketing the “Affinity and Refinement” Brand

The categories of projects included warm winter action, major transportation guarantee, volunteer service in peak season, civil aviation knowledge into campus and other volunteer service projects with the special “Affinity and Refinement” characteristics of China Southern, as well as projects in rural revitalization, environmental protection, large-scale competitions, emergency rescue and other aspects.
China Southern took the initiative to undertake its international Corporate Social Responsibilities by adopting various measures to promote the development of local communities and helping to build a community with a shared future for mankind.

**Overseas Responsibility**

**Case: Serving Auckland Community Residents**

The “Chinese Community Service Center” established in 1998, is a charitable professional community service organization serving new Asian immigrants and Asian communities in Auckland, New Zealand. Starting from June 2021, the Auckland Sales Office participated in a weekly Chinese community service volunteer activity which included arranging COVID-19 vaccinations, mutual assistance and assisting help seekers to make hospital appointments. At the Chinese Community Service Volunteer Commendation Event in August 2021, five employees of the China Southern Auckland sales department were rated as outstanding volunteers of the year.

**Case: Promoting Economic Development in New Zealand**

In the face of the sudden COVID-19 pandemic, New Zealand’s economic development has been impacted. China Southern has always maintained the normal operations of the Guangzhou-Auckland route to ensure that passengers can return home, and the safe transportation of anti-pandemic materials, production and live materials. As the largest airline in the People’s Republic of China, China Southern was and continues to be uniquely positioned to make significant contribution in maintaining trade between New Zealand and China during extremely challenging times, and fulfilled the promise of “Sino-New Zealand Ties” with practical actions.

**Case: Sponsored New Zealand “Chinese Week”**

New Zealand Chinese Week is a Chinese language learning activity initiated by local New Zealanders to encourage more local people to learn Chinese. Since 2014, China Southern has supported this activity and during Year 2021, China Southern and officials from the Chinese Language Week jointly launched the “Five Days Five Phrases Challenge” online event. Chinese Language Week staff created a dedicated webpage for the “Five Days Five Phrases Challenge” event on the official website, and launched an event on its Facebook and Instagram, which received 99,931 exposures and 61,064 people were participants.

China Southern’s international publicity case “Culture Going Global, Beauty in Communion” won 4th Place in the SASAC 2021 Excellent Case of “Cross-Cultural Integration” in International Image Construction of Chinese Enterprises.

Shipping supplies to New Zealand
Outlook

During Year 2022, under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, China Southern Airlines will thoroughly implement the general requirements for party building in the new era and the party’s organizational line in the new era, and adhere to the Company’s ‘1455’ development goals and ‘3566’ development goals to guarantee the high-quality development of China Southern with high-quality party building, highlighting the political, leadership and cohesive nature of party building which provides for a strong guarantee for building a world-class air transport enterprise and becoming a stronger and better state-owned enterprise. The Company will maintain the original mission and set sail for a new journey to achieve a better future.

Adhering to Safe Development

The Company has remained steadfast to its overriding principle of Safety First, with emphasis preventing and resolving potential safety risks, improving safety quality and ensuring that the safety situation continues to be stable.

Adhering to Cooperative Development

The Company continued to deepen cooperation with domestic airlines to jointly cope with the current challenge of the COVID-19 situation; continued to explore pathways of international cooperation and accelerated the establishment of international cooperative relations by strengthening the cooperation between the “airports” and “airlines” and strengthening the cooperation between the upstream and downstream of the industrial chain.

Adhering to High-Quality Development

The Company scientifically grasped the relationship between “quantity” and “quality” to enhance the efficiency of input and output and correctly handle the relationship between scale, speed and efficiency which improved the efficiency of resource allocation.

Adhering to Innovative Development

The Company actively promoted technological, managerial, product and service innovations that worked in unison to accelerate the digital and intelligent transformations of China Southern Airlines.

Adhering to Cooperative Development

The Company continued to deepen its cooperation with domestic airlines to jointly face with the current challenge of the COVID-19 situation.

Adhering to Shared Development

The Company actively undertook the responsibility and mission of a central enterprise to bring returns to shareholders, benefits to employees, value for passengers, actively gave back to society, and strengthened energy conservation and emission reduction, consolidated the achievements of poverty alleviation and promoted the sharing of development achievements.
List of Policies and Regulations

<table>
<thead>
<tr>
<th>ESG Indicators</th>
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<th>Relative Law and Regulations of Year 2021</th>
</tr>
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<tbody>
<tr>
<td>E4 Climate Change</td>
<td>Notice on strengthening charging management of new energy vehicles.</td>
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### Performance Data

#### A. Environment

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<th>Unit</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
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<tbody>
<tr>
<td><strong>A1. Emissions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon dioxide emissions (Scope I)</td>
<td>t</td>
<td>2,846.00</td>
<td>1,931.80</td>
<td>1,910.86</td>
</tr>
<tr>
<td>Carbon dioxide emissions (Scope II)</td>
<td>t</td>
<td>16.74</td>
<td>14.69</td>
<td>13.52</td>
</tr>
<tr>
<td>Carbon dioxide emissions</td>
<td>t</td>
<td>2,852.77</td>
<td>1,946.49</td>
<td>1,924.38</td>
</tr>
<tr>
<td>Carbon dioxide emission per ton kilometer</td>
<td>Ton / 10,000 ton km</td>
<td>8.69</td>
<td>9.29</td>
<td>8.96</td>
</tr>
<tr>
<td><strong>A1.3 Hazardous waste (maintenance)</strong></td>
<td>ton</td>
<td>615.205</td>
<td>471.508</td>
<td>704.903</td>
</tr>
<tr>
<td><strong>A1.4 Non-hazardous waste (onboard service)</strong></td>
<td>m³</td>
<td>7,096.5</td>
<td>8,096.0</td>
<td>11,063.0</td>
</tr>
<tr>
<td><strong>A1.6 Waste gas treatment (maintenance)</strong></td>
<td>10,000m³</td>
<td>23,560</td>
<td>20,000</td>
<td>26,080</td>
</tr>
<tr>
<td><strong>A1.7 Industrial waste treatment (maintenance)</strong></td>
<td>ton</td>
<td>16,477.0</td>
<td>11,025.9</td>
<td>12,987.0</td>
</tr>
<tr>
<td><strong>A1.8 Treatment of aviation food production waste water</strong></td>
<td>10,000t</td>
<td>22.4</td>
<td>8.6</td>
<td>8.3</td>
</tr>
<tr>
<td><strong>A1.9 Treatment rate of aviation food production waste water</strong></td>
<td>%</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>A1.10 Hazardous waste treatment rate (maintenance)</strong></td>
<td>%</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>A1.11 Harmless waste disposal rate (onboard service)</strong></td>
<td>%</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>A2. Resource Consumption</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aviation fuel consumption</td>
<td>10,000t</td>
<td>980.10</td>
<td>613.27</td>
<td>605.31</td>
</tr>
<tr>
<td>Fuel consumption per ton kilometer</td>
<td>Ton / 10,000 ton km</td>
<td>2.76</td>
<td>2.95</td>
<td>2.65</td>
</tr>
<tr>
<td><strong>A1.2 Natural gas</strong></td>
<td>m³</td>
<td>4,869.11</td>
<td>3,922.78</td>
<td>3,425.12</td>
</tr>
<tr>
<td><strong>A1.3 Diesel oil</strong></td>
<td>ton</td>
<td>6,386.09</td>
<td>7,282.08</td>
<td>6,304.37</td>
</tr>
<tr>
<td><strong>A1.4 Coal</strong></td>
<td>ton</td>
<td>558</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td><strong>A1.5 Electric</strong></td>
<td>10,000kW</td>
<td>26,100.80</td>
<td>27,873.09</td>
<td>25,631.36</td>
</tr>
</tbody>
</table>

#### B. Society

<table>
<thead>
<tr>
<th>ESG Indicator</th>
<th>Unit</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B1. Number of Employees: by gender, type of employment, age group and region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B1.1 Number of Employees</strong></td>
<td>Person</td>
<td>111,088</td>
<td>105,931</td>
<td>96,080</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>Person</td>
<td>68,193</td>
<td>58,275</td>
<td>54,893</td>
</tr>
<tr>
<td>Female</td>
<td>Person</td>
<td>43,792</td>
<td>47,538</td>
<td>41,732</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic (except Guangzhou)</td>
<td>Person</td>
<td>24,077</td>
<td>25,215</td>
<td>25,167</td>
</tr>
<tr>
<td>International</td>
<td>Person</td>
<td>1,339</td>
<td>907</td>
<td>803</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postgraduate and above</td>
<td>Person</td>
<td>4,419</td>
<td>4,399</td>
<td>4,681</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>Person</td>
<td>50,460</td>
<td>51,494</td>
<td>52,180</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 30</td>
<td>Person</td>
<td>49,954</td>
<td>43,831</td>
<td>38,281</td>
</tr>
<tr>
<td>31-40 years old</td>
<td>Person</td>
<td>30,986</td>
<td>32,149</td>
<td>35,113</td>
</tr>
<tr>
<td>41-50 years old</td>
<td>Person</td>
<td>18,033</td>
<td>19,079</td>
<td>17,985</td>
</tr>
<tr>
<td>Over 51 years old</td>
<td>Person</td>
<td>4,903</td>
<td>5,372</td>
<td>6,059</td>
</tr>
</tbody>
</table>

#### ESG Indicator

<table>
<thead>
<tr>
<th>A. Environment</th>
<th>Unit</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A2.1 Natural gas</strong></td>
<td>10,000 m³</td>
<td>2,537.49</td>
<td>965.80</td>
<td>930.83</td>
</tr>
<tr>
<td><strong>A2.2 Liquid gas</strong></td>
<td>ton</td>
<td>190.41</td>
<td>167.17</td>
<td>215.80</td>
</tr>
<tr>
<td><strong>A2.3 Total water consumption</strong></td>
<td>10,000 tons</td>
<td>696.65</td>
<td>612.30</td>
<td>477.97</td>
</tr>
<tr>
<td><strong>A2.4 Water consumption intensity</strong></td>
<td>m³ / 1000 yuan</td>
<td>0.4514</td>
<td>0.6585</td>
<td>0.4653</td>
</tr>
<tr>
<td><strong>A2.5 Consumption of packaging materials (air food)</strong></td>
<td>ton</td>
<td>881.03</td>
<td>566.46</td>
<td>419.99</td>
</tr>
<tr>
<td>ESG Indicator</td>
<td>Unit</td>
<td>2019</td>
<td>2020</td>
<td>2021</td>
</tr>
<tr>
<td>--------------</td>
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</tr>
<tr>
<td>B2. Health and Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2.1 Work related deaths</td>
<td>Person</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Proportion of employees died at work</td>
<td>%</td>
<td>0.0010</td>
<td>0.0010</td>
<td>0.0010</td>
</tr>
<tr>
<td>B2.2 Working hours lost due to work</td>
<td>Working day</td>
<td>17,508</td>
<td>12,242</td>
<td>12,039</td>
</tr>
<tr>
<td>B3. Development and Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of Trainees by Gender</td>
<td>person</td>
<td>63,665</td>
<td>68,630</td>
<td>81,253</td>
</tr>
<tr>
<td>Male</td>
<td>person</td>
<td>35,940</td>
<td>38,397</td>
<td>46,879</td>
</tr>
<tr>
<td>Female</td>
<td>person</td>
<td>28,816</td>
<td>30,233</td>
<td>34,374</td>
</tr>
<tr>
<td>Average Training Hours of Employees by Gender</td>
<td>Hour</td>
<td>134.36</td>
<td>120.25</td>
<td>74.57</td>
</tr>
<tr>
<td>Male</td>
<td>Hour</td>
<td>153.55</td>
<td>128.81</td>
<td>81.65</td>
</tr>
<tr>
<td>Female</td>
<td>Hour</td>
<td>103.39</td>
<td>120.74</td>
<td>63.54</td>
</tr>
<tr>
<td>B5. Supply Chain Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B5.1 Number of Suppliers by Region</td>
<td>Company</td>
<td>13,479</td>
<td>14,431</td>
<td>21,624</td>
</tr>
<tr>
<td>Central South</td>
<td>Company</td>
<td>4,473</td>
<td>6,990</td>
<td>10,368</td>
</tr>
<tr>
<td>B5.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B6. Product Responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B6.2 Number of Complaints Received about Products and Services</td>
<td>Complaint rate ‰</td>
<td>0.3071</td>
<td>0.1320</td>
<td>0.4394</td>
</tr>
<tr>
<td>B7. Anti-Corruption</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B7.1 Number of Corruption Lawsuits</td>
<td>Case</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>B8. Community Investments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B8.2 Resources Used in the Focus Area</td>
<td>Person time</td>
<td>3,000</td>
<td>15,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Working time</td>
<td>10,000 hours</td>
<td>3.6</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Perform important charter tasks</td>
<td>Shift</td>
<td>54</td>
<td>321</td>
<td>74</td>
</tr>
<tr>
<td>Transport personnel for important charter flights</td>
<td>Person time</td>
<td>4,615</td>
<td>40,705</td>
<td>7,268</td>
</tr>
</tbody>
</table>

Note: Unless otherwise specified, the data coverage of this report is consistent with the 2021 Financial Report of China Southern Airlines.
1. Carbon dioxide emission factors and calculation methods refer to civil aviation comprehensive statistical reporting system (average carbon dioxide emission factors of China’s regional power grid during years 2011 and 2012).
2. Category 1 carbon dioxide includes direct emissions from aviation kerosene, gasoline, diesel, coal, natural gas and liquefied gas; Category 2 carbon dioxide additionally includes indirect carbon dioxide emissions caused by electricity consumption.
3. Category 3 carbon dioxide includes direct emissions from aviation kerosene, gasoline, diesel, coal, natural gas and liquefied gas; Category 4 includes indirect carbon dioxide emissions caused by electricity consumption.
4. Water consumption intensity = total water consumption / total output value.
5. The number of work-related deaths in Year 2021 was the sudden illness of employees during work.
### ESG Index of Indicators

#### Main Category: Environment

<table>
<thead>
<tr>
<th>Level A</th>
<th>A. Environment</th>
<th>Content</th>
<th>Locations</th>
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</thead>
<tbody>
<tr>
<td>A1: Emissions</td>
<td>General Disclosure</td>
<td>Information on exhaust and greenhouse gas emissions, pollution to water and land, generation of hazardous and non-hazardous wastes; (c) policies and (d) compliance with relevant laws and regulations that have a significant impact on the issuer.</td>
<td>P24-25, P50-54, P102, P104</td>
</tr>
<tr>
<td>A1.1</td>
<td>Emission types and relevant emission data</td>
<td>P24-25, P104</td>
<td></td>
</tr>
<tr>
<td>A1.2</td>
<td>Direct (range 1) and indirect (range 2) greenhouse gas emissions (in tons) and (if applicable) density (in units of production, per facility)</td>
<td>P24-25, P104</td>
<td></td>
</tr>
<tr>
<td>A1.3</td>
<td>Total amount of hazardous waste generated (in tons) and (if applicable) density (in units of production and facilities)</td>
<td>P54, P104</td>
<td></td>
</tr>
<tr>
<td>A1.4</td>
<td>Total amount of harmless waste generated (in tons) and (if applicable) density (in units of production and facilities)</td>
<td>P54, P104</td>
<td></td>
</tr>
<tr>
<td>A1.5</td>
<td>Describe the emission targets set and the steps taken to achieve them.</td>
<td>P21-23, P51</td>
<td></td>
</tr>
<tr>
<td>A1.6</td>
<td>Describe the methods for handling hazardous and non-hazardous wastes and the waste reduction goals set and the steps taken to achieve these goals.</td>
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</tr>
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</table>

#### Main Category: Health and Safety

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<th>Content</th>
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</tr>
</thead>
<tbody>
<tr>
<td>B1: Employment</td>
<td>General Disclosure</td>
<td>Information on: (1) policies on remuneration and dismissal, recruitment and promotion, working hours, holidays, equal opportunities, diversity, anti-discrimination and other treatment and benefits, and (2) compliance with relevant laws and regulations that have a significant impact on the issuer.</td>
<td>P84-85</td>
</tr>
<tr>
<td>B1.1</td>
<td>Total number of employees by gender, type of employment, age group and region.</td>
<td>P84-85</td>
<td></td>
</tr>
<tr>
<td>B1.2</td>
<td>Turnover rate by gender, age group and region. Includes commercial secrets not disclosed yet.</td>
<td>P85</td>
<td></td>
</tr>
<tr>
<td>B1.3</td>
<td>Number of deaths due to work injury.</td>
<td>P85</td>
<td></td>
</tr>
<tr>
<td>B1.4</td>
<td>Number of working days lost due to work injury.</td>
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<td></td>
</tr>
<tr>
<td>B1.5</td>
<td>Describe the occupational health and safety measures adopted, as well as relevant implementation and monitoring measures.</td>
<td>P31, P76-87, P101, P102</td>
<td></td>
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</tbody>
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#### Main Category: Development and Training

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</thead>
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<tr>
<td>C1: Environmental and Social Responsibility</td>
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<td>P84, P91, P94, P95, P97, P102</td>
</tr>
<tr>
<td>C1.1</td>
<td>Percentage of trainees by gender and type of employees (i.e., senior management, middle management).</td>
<td>P85</td>
<td></td>
</tr>
<tr>
<td>C1.2</td>
<td>Average number of training hours per employee by gender and type of employee.</td>
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</thead>
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<tr>
<td>D1</td>
<td>General Disclosure</td>
<td>Information on: (1) policies to prevent child labor or forced labor and (2) compliance with relevant laws and regulations that have a significant impact on the issuer.</td>
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</tr>
<tr>
<td>D1.1</td>
<td>Describe measures to review recruitment practices to avoid child labor and forced labor.</td>
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<td></td>
</tr>
<tr>
<td>D1.2</td>
<td>Describe the steps taken to eliminate violations when they are identified.</td>
<td>P84, P102</td>
<td></td>
</tr>
</tbody>
</table>
B7.2 Describe preventive measures and reporting procedures, as well as relevant implementation and monitoring methods.

B6.3 Describe practices related to the maintenance and protection of intellectual property rights.

B6.2 Number of complaints about products and services received and how to deal with them.

B6.1 Percentage of the total number of products sold or delivered that need to be recovered for safety monitoring methods.

Level B3: Supply Chain Management

General Disclosure

Information on the health and safety, advertising, labelling and privacy of the products and services provided and remedies: (1) policies; and (2) compliance with relevant laws and regulations when selecting suppliers, as well as the relevant implementation and monitoring methods.

Not applicable

F66-67

Level B6: Product Responsibility

B6.1 Number of complaints about products and services received and how to deal with them.

B6.3 Describe practices related to the maintenance and protection of intellectual property rights.

B6.2 Number of complaints about products and services received and how to deal with them.

Level B7: Anti-Corruption

B7.1 Number and outcomes of corruption issues brought and concluded against the issuer or its employees during the reporting period.

F107

B7.2 Describe preventive measures and reporting procedures, as well as relevant implementation and monitoring methods.

B7.3 Describe the anti-corruption training provided to directors and employees.

Level B8: Community Investments

General Disclosure

Policy on community involvement to understand the needs of the communities in which they operate and to ensure that the interests of the communities are taken into account in their business activities.

F30-35, F68, P26-99, P2013

Focus 2021

B7: Core ESG Report

B2.3 Resources (such as money or time) used in the area of focus.

F30-35, F68, P26-99

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Build a Strong Legal and Setting Solid for a Long Future

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Afford and Involvement Setting Solid for a Worm Future

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Moving Forward Hand in Hand Setting Solid Towards A BetterFuture

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Dear Reader:

Hello and thank you for reading this Corporate Social Responsibility Report. To further improve our work and make sure our CSR Report meets in line with your interests, please write to us!

Our address is: China Southern Airlines Company Limited. No.68 Qixin Road, Baiyun District, Guangzhou. Postal code: 51040.

Your feedback and suggestions are greatly appreciated.

Optional Question:
1. Are you satisfied with this report? □ Yes □ No □ Normal
2. Is the information you are concerned about reflected in this CSR report? □ Yes □ No □ Normal
3. Do you think this Corporate Social Responsibility report truly reflects the content of China Southern’s Corporate Social Responsibility work and its impact on stakeholders? □ Yes □ No □ Normal
4. Can you easily find the information you are seeking in this report? □ Yes □ No □ Normal
5. Are you satisfied with the layout design of this CSR report? □ Yes □ No □ Normal

Open Question:
6. Are there any shortcomings of this report?  
7. What would you like to see on a regular basis in this report?  
8. What opinions and suggestions do you have on our future Corporate Social Responsibility work and reports?  

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- Staff  
- Partners  
- Environmental Protection Agency  
- Community  
- Media  
- Peer  
- Other

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