



**中国铝业股份有限公司**

**ALUMINUM CORPORATION OF CHINA LIMITED**

Stock Code: 2600 (HKSE) ACH (US) 601600 (China)



**2021**

Social Responsibility and Environmental,  
Social and Governance Report



# 中国铝业股份有限公司

ALUMINUM CORPORATION OF CHINA LIMITED

The Company logo is composed of letter A and L, like a pyramid, symbolizing the Company's stability as Tai Mountain, and also the spirit of "striving for excellence, innovation and strength". The combination of industrial blue and silver gray shows the characteristics of the aluminum industry, and at the same time reflects the Company's stability and rigor, giving people a sense of reliability and trust.

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## Statement from the Chairman

Years go by and seasons flow. Looking back, 2021 proved to be a milestone year in the reform and development of Chalco. Throughout the year, we worked tirelessly with achievements delivered and various challenges navigated. Fresh progress has been made in pursuing high-quality development.

Our business performance hit a new high. Aimed at building a world-class aluminum company with global competitiveness, we took actions to improve our management capability by benchmarking working-leading standards, leading to a significant increase in efficiency and performance. The net profit attributable to shareholders for the year reached 5.08 billion yuan, a 5.65 times increase YOY, and the return on equity hit 9.28%, up by 7.88% YOY. Compared to the start of the year, our year-end stock prices of A-shares, H-shares and US stocks rose by 67.77%, 57.30% and 58.18% respectively. Our net operating cash flow also registered a new high.

Our strategic planning has been constantly strengthened. New development philosophy is needed for the new development stage. We have formulated the “12337” development plan and the “3×5” new industrial development paradigm. We are dedicated to becoming a leader in the modern aluminum industry chain and a birthplace of original technologies in the global aluminum industry, and have formulated a blueprint for high-quality development. Taking the supply-side structural reform as the mainstay, we have accelerated integration into the Belt and Road Initiative (BRI), sped up industrial layout optimization and structural adjustment, proactively cultivated strategic emerging industries, continued to improve independency of the industrial chain and supply chain. Our role in the industry has been substantially enhanced and we are now effectively leading the development of the industry.

Our system and mechanism have been continuously improved. Aimed at improving the market-oriented operation mechanism, we have further modernized our governance system and capacity and advanced a three-year action to deepen reform. Substantial breakthroughs in the key areas and crucial links of the reform have been made. We have further improved the board of directors, accelerated modernizing our corporate system, actively implemented the tenure system and contractual management of management members, carried out the pilot project of professional managers appointment, employed multiple methods to strengthen medium-long-term motivation, and are dedicated to creating a reform role model. As a result, the vitality and efficiency of the enterprise, as well as the enthusiasm and creativity of the employees have been significantly boosted.

Our reputation as a responsible brand is further promoted. We consider “excellent corporate citizen” as our business card, and have fully integrated social responsibility management into our development strategies and daily operations. We are committed to sharing our high-quality development results with society. Throughout the year, we have donated RMB40.26 million yuan and 180 tons of aluminum ingots, performed social responsibilities and contributed to disaster relief and poverty alleviation. We ranked 4th in the “Central Enterprise ESG • Pioneer 50 Index” and the 49th among the Top 500 ESG Excellent Enterprises in China, and our performance has won widespread praise. Today, on behalf of the board of directors, I would like to express my heartfelt thanks to leaders at all levels, friends from all walks of life and our investors for your long-term care and support for Chalco!

Practice enriches knowledge and more knowledge leads to better practice. In the year ahead, we will continue to uphold our mission of “rewarding shareholders, enabling employees, benefiting customers, contributing to society and conserving the environment”, adhere to our core values of “responsibility, integrity, openness and excellence”, be committed to providing global customers with greener and higher-quality products, strive to boost financial, environmental, and social performances, and work hard to create a prospect for high-quality development.



Chairman of the Board, Chalco: Liu Jianping  
March 22, 2022



## Statement from the President



### Promote All-out Reform and Innovation and Build A New Model of High-quality Development

In year 2021, Chalco welcomes its 20<sup>th</sup> anniversary. The Company works together to move forward on reforming and towards innovation based on the promotion of high-quality development and all-factor benchmarking. With these efforts, the Company's operating income and net profit increased by 45% and 3.9 times YOY, respectively, and the abilities in competitiveness, innovation, controlling, influence and risk resilience had comprehensive improvement, which emphasizing the Company took a strong step forward in building a world-class enterprise.

**Comprehensive improvement in value creation capability.** The Company aims at becoming an leading enterprise and starts an creative all-factor benchmarking to peer companies, as well as establishing a value creation management system and focusing on quality and efficiency improvement. This year, the Company has been identified as a key benchmark state-owned enterprise in the corporate governance benchmarking construction action by the State-owned Assets Supervision and Administration Commission of the State Council. The Company keeps updating and studying advanced management model and builds "five standards and one control" model for electrolytic aluminum and "three trends and one promotion" model for alumina, which uses informational and intelligent measures to empower and promoting the development of traditional industry. The company also developed new business model, built up e-commerce service platform, encouraged no-car logistics, and applied "Alecp" internet procurement platform. These digitalized transformation helped the Company to reduce 2 billion RMB in executing procurement, services and logistics.

**New step forward in high-quality development.** The Company keeps adjusting and optimizing in industrial distribution by deeply implementing the "two area" strategy and accelerating sources gathering and specialized integration, which promotes the evolvement of industrial bases and modernization of industrial chain. The Company persists on technology self-reliance and reforms R&D system in order to continuously promoting the capability in the innovation of technology traction and industrial variation. The Company's ability in technology orientation and strategic supports enhanced continuously, which a forms a number of key and core technologies, including high purity ultrafine aluminum nitride, aluminum hydroxide for new energy vehicles and continuous casting of continuous rolling aluminum alloy welding consumables.

**Remarkable results in ecological civilization construction.** The Company believes the concept of "lucid waters and lush mountains are invaluable assets". The Company respects, complies and protects the nature by responding the national's call of "Dual Carbon", persistently optimizing energy usage structure, deeply implementing energy-saving and low-carbon technology transformation, and developing green and low-carbon industry. The Company positively engaged in the global climate actions, with a reduction in greenhouse gas emissions by 2.2 million YOY, reclamation amount reach to 12.8 thousand hectares with the reclamation rate mainting at 100%, and a total of 8 mines were included in the National Green Mine Directory.

The year of 2022 is a vital year for Chalco to promote high-quality development. The Company will enhance strategic thinking, actively adapt to the changes in the industry, transform the development pathways, optimize industry structure, shift growth momentum, continuously improve value creation capabilities. The Company aims at creating intensive high-quality development model and firmly becomes the "head" of modern aluminum industrial chain and original technology "birthplace". The Company will require the shareholders, investors, employees, partners and the society by making outstanding achievements in a new manner.

President: Zhu Runzhou  
March 22th, 2020



# 1

## About this report

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## 2021

Social Responsibility and Environmental,  
Social and Governance Report

## About this report

This report covers the environmental, social, and governance (ESG) performance of the Aluminum Corporation of China Limited (hereinafter referred to as “Chalco”, the “Company” or “we”, “us”, “our”, or “ourselves”) and its branches and subsidiaries (collectively referred to as the “Group”), as well as communications and responses to the needs of our stakeholders. This report has been reviewed and approved by the Board, which is fully responsible for the our sustainable development work.

### 1.1 Reporting period

This report covers the period from 1st January 2021 to 31st December 2021 (the “reporting period” or the “year”), unless otherwise specified.

### 1.2 Reporting scope

This report covers Chalco and its branches and subsidiaries, focusing on the environmental, social, and governance performance and related policies and management.

### 1.3 Reporting cycle

Chalco’s Corporate Social Responsibility Report and Environmental, Social, and Governance Report are published annually. This is our 14th report.

### 1.4 Reporting guidelines

This report was prepared with reference to the *Environmental, Social and Governance Reporting Guide (the “ESG Guide”)* contained in Appendix 27 of the Rules Governing the Listing of Securities on the Hong Kong Exchanges and Clearing Limited (HKEX); the *Guidelines No. 1 for the Self-regulation of Listed Companies on the Shanghai Stock Exchange – Standardized Operation*, and the *Guidelines on Listed Companies’ Environmental Information Disclosure of the Shanghai Stock Exchange*; the *Sustainability Standards 2018* issued by the Global Reporting Initiative (GRI); the International Organization for Standardization (ISO)’s *Guidance on Social Responsibility (ISO26000:2010)*; the national standard GB/T36000 *Guidance on Social Responsibility*; and the *Guidelines to the State-owned Enterprises Directly under the Central Government* issued by State-owned Assets Supervision and Administration Commission (SASAC). The materiality assessment results according to the reporting principles in the above-mentioned guidelines and standards also serve as the basis for identifying information to be disclosed. This report is available in both Chinese and English. Should there be any discrepancy between the Chinese version and the English version, the Chinese version shall prevail.

### 1.5 Reporting principles

**Materiality:** In accordance with the requirements of the *Environmental, Social and Governance Reporting Guide* issued by the Hong Kong Exchanges and Clearing Limited (HKEX), we have carried out stakeholder engagement and materiality assessment, and clarified the report content and scope based on the results of materiality assessment. For details, please refer to “Stakeholder communication and response” and “Materiality identification and assessment” in this report.

**Balance:** This report unbiasedly discloses both the positive and negative information to showcase the environmental, social and governance performance of the Company during the reporting period.

**Quantitative:** This report refers to applicable quantitative standards and practices, adopts quantitative methods to disclose applicable key performance indicators (KPIs), and elaborates relevant quantitative standards, methodologies, assumptions and/or calculation tools, and the source of the conversion factors used (if applicable) where appropriate.

**Consistency:** Unless otherwise specified, there are no major changes to the disclosure scope of this report from previous ones, and methodologies used are consistent with those in the prior year.





## About this report (continued)

### 1.6 Reporting data specification

The data quoted in this report is final statistics and in Renminbi ("RMB") unless otherwise specified. If there are any discrepancies between the financial disclosures in this report and the Company's Annual Report, the figures in the Annual Report shall prevail.

### 1.7 Reporting specification

In this report, the following terms shall have the following meanings unless otherwise specified:

"China"	refers to The People's Republic of China
"SASAC"	refers to the State-owned Assets Supervision and Administration Commission
"NDRC"	refers to the National Development and Reform Commission
"The 14th Five-Year Plan"	refers to the Outline of the 14th Five-Year Plan (2021-2025) for National Economic and Social Development and Vision 2035 of the People's Republic of China
"30.60"	refers to the statement made by General Secretary Xi Jinping at the General Debate of the 75 <sup>th</sup> session of the UN General Assembly that "China will scale up its Intended Nationally Determined Contributions (INDCs) by adopting more vigorous policies and measures and aim to have CO <sub>2</sub> emissions peak before 2030 and achieve carbon neutrality before 2060"
"Chalco", the "Company", "we", "us", or "our"	refers to Aluminum Corporation of China Limited
The "Group"	refers to Aluminum Corporation of China Limited and its branches and subsidiaries
"Chinalco"	refers to Aluminum Corporation of China
"Chalco Trading Group"	refers to China Aluminum International Trading Group Co., Ltd
"Chalco Logistics"	refers to China Aluminum Logistics Group Corporation Co., Ltd.
"Chalco Materials"	refers to Chalco Materials Co., Ltd.
"Three Platforms"	refers to Chalco Trading Group, Chalco Logistics, Chalco Materials
"Zunyi Aluminum"	refers to Zunyi Aluminum Co., Ltd.
"Baotou Aluminum"	refers to Baotou Aluminum Co., Ltd.
"Guangxi Branch"	refers to Guangxi Branch of Chalco
"Zhongzhou Aluminum"	refers to Zhongzhou Aluminum Co., Ltd.
"Ningxia Energy"	refers to Chalco Ningxia Energy Group Co., Ltd.

"Zhengzhou Research Institute"	refers to Chalco Zhengzhou Nonferrous Metal Research Institute Co., Ltd.
"Chalco Shandong"	refers to Chalco Shandong Co., Ltd.
"Shanxi New Material"	refers to Chalco Shanxi New Material Co., Ltd.
"Chalco Mining"	refers to Chalco Mining Co., Ltd.
"Qinghai Branch"	refers to the Qinghai Branch of Chalco
"Guizhou Branch"	refers to the Guizhou Branch of Chalco
"Fushun Aluminum"	refers to Fushun Aluminum Co., Ltd
"Lanzhou Aluminum"	refers to Lanzhou Aluminum Co., Ltd
"Chalco Guinea"	refers to Chalco Guinea Company S.A
"Guangxi Huasheng"	refers to Guangxi Huasheng New Material Co., Ltd
"Guizhou Huajin Aluminum"	refers to Guizhou Huajin Aluminum Co., Ltd
"Shanxi Zhongrun"	refers to Shanxi Chalco Huarun Co., Ltd
"Xinghua Technology"	refers to Shanxi Jiaokou Xinghua Technology of Aluminum Corporation of China Co., Ltd
"Shanxi Huaxing"	refers to Shanxi Huaxing Aluminum Co., Ltd

## 1.8 Access to the report

Electronic copies are available as follows:

The Stock Exchange of Hong Kong:

<https://www.hkex.com.hk>

The Shanghai Stock Exchange:

<https://www.sse.com.cn>

Chalco Website:

<https://www.chalco.com.cn>

## 1.9 Response to the report

The Group values suggestions or opinions from various stakeholders for continuous improvements. If you have any comments on this report, please contact us:

Phone no.: 8610-8229 8322

Fax no: 8610-8229 8158

Email: [ir@chalco.com.cn](mailto:ir@chalco.com.cn)

A feedback questionnaire is attached on page 87 of this report, and you are welcome to fill in and send it to the email address above.

# 2

## About Chalco

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## About Chalco

### 2.1 Company profile

Chalco is controlled by Aluminum Corporation of China. Chalco is a leading company in China's aluminum industry, the world's largest supplier of alumina, fine alumina, high-purity aluminum, and aluminum anodes, and the world's second-largest supplier of electrolytic aluminum. Chalco has been listed in the New York Stock Exchange (stock code: ACH), the Stock Exchange of Hong Kong (stock code: 2600), and the Shanghai Stock Exchange (stock code: 601600). A-shares are included in the MSCI China A Onshore Index and H-shares are included in the Hang Seng China Enterprises Index and the Hang Seng Corporate Sustainability Index Series. As of the end of 2021, Chalco had a total of 39 subordinate units.

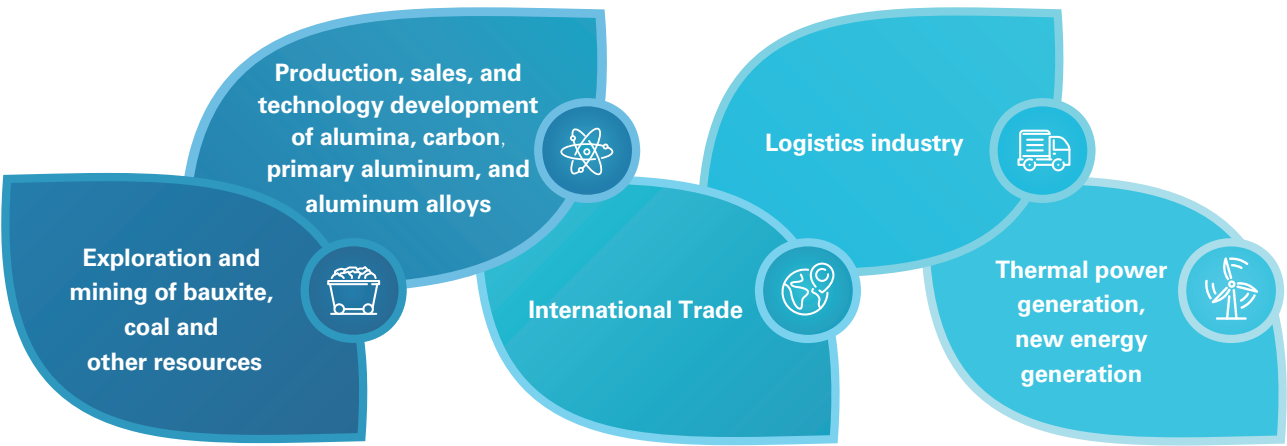
#### 2.1.1 Basic information

Company name:	Aluminum Corporation of China Limited
President:	Liu Jianping
Date of foundation:	September 10, 2001
Registered address:	No. 62, Xizhimen North Street, Haidian District, Beijing
Total capital stock:	17022672951
Controlling shareholder:	Aluminum Corporation of China
Company website:	<a href="http://www.chalco.com.cn">www.chalco.com.cn</a>
Actual controller:	State-owned Assets Supervision and Administration Commission of the State Council
Email:	<a href="mailto:ir@chalco.com.cn">ir@chalco.com.cn</a>

# About Chalco (continued)

## 2.1.2 Operating business segment

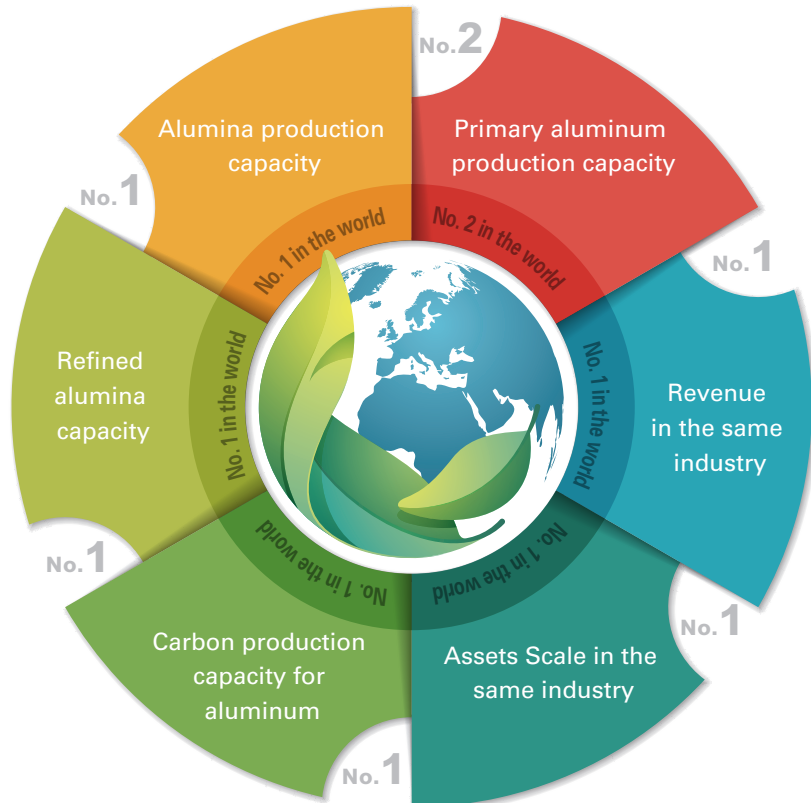
The Group is a large manufacturing enterprise, whose main businesses range from exploration and mining of bauxite and coal, the production, sales, and R&D of alumina, carbon, primary aluminum and aluminum alloy products, to international trade, logistics, and power generation from both fossil fuels and new energy.



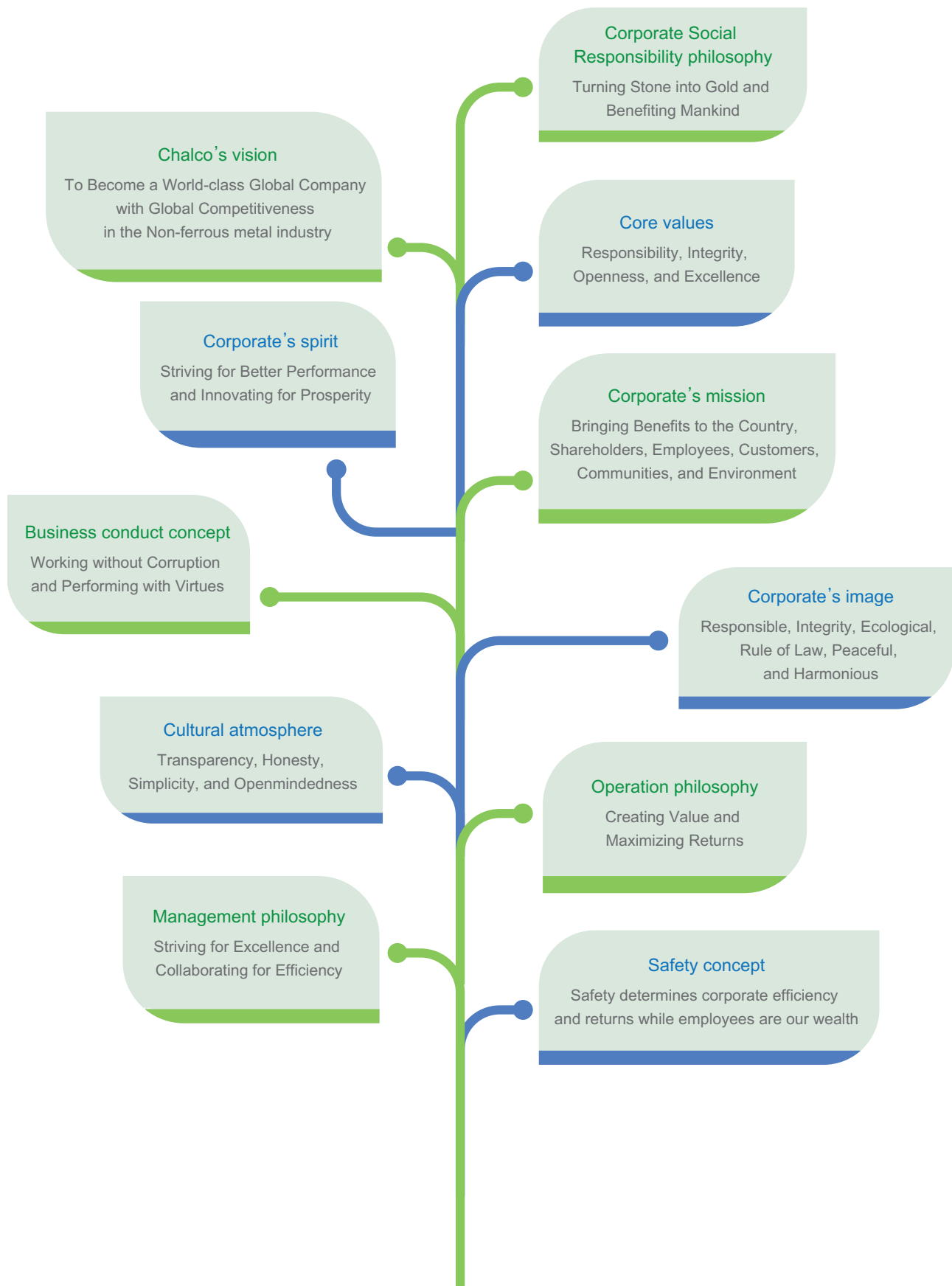
Chalco is also a national enterprise technology center and has independently developed an array of representative technological achievements in the field of bauxite, alumina, fine alumina, and electrolytic aluminum. The Company plays a leading role in developing and revising numerous national and industry standards, guiding industry standards and technological advances.

## 2.1.3 Market presence

In recent years, Chalco has continuously strived to comprehensively deepen reform and innovation and to promote transformation and upgrading. Chalco has made breakthroughs in layout optimization, remarkably improved comprehensive strength, and enhanced market competitiveness. The position and role of Chalco as a core strategic unit of the Group has been more prominent as it has maintained the highest credit rating across the global non-ferrous metal industry for many years.



## 2.2 Core philosophy





## About Chalco (continued)

### 2.3 Accolades



Ranked fourth in the State-owned Enterprises ESG Pioneer 50 Index and earned a leading position



Included in the Hang Seng Corporate Sustainability Index Series; the MSCI ESG rating was upgraded from CCC to B



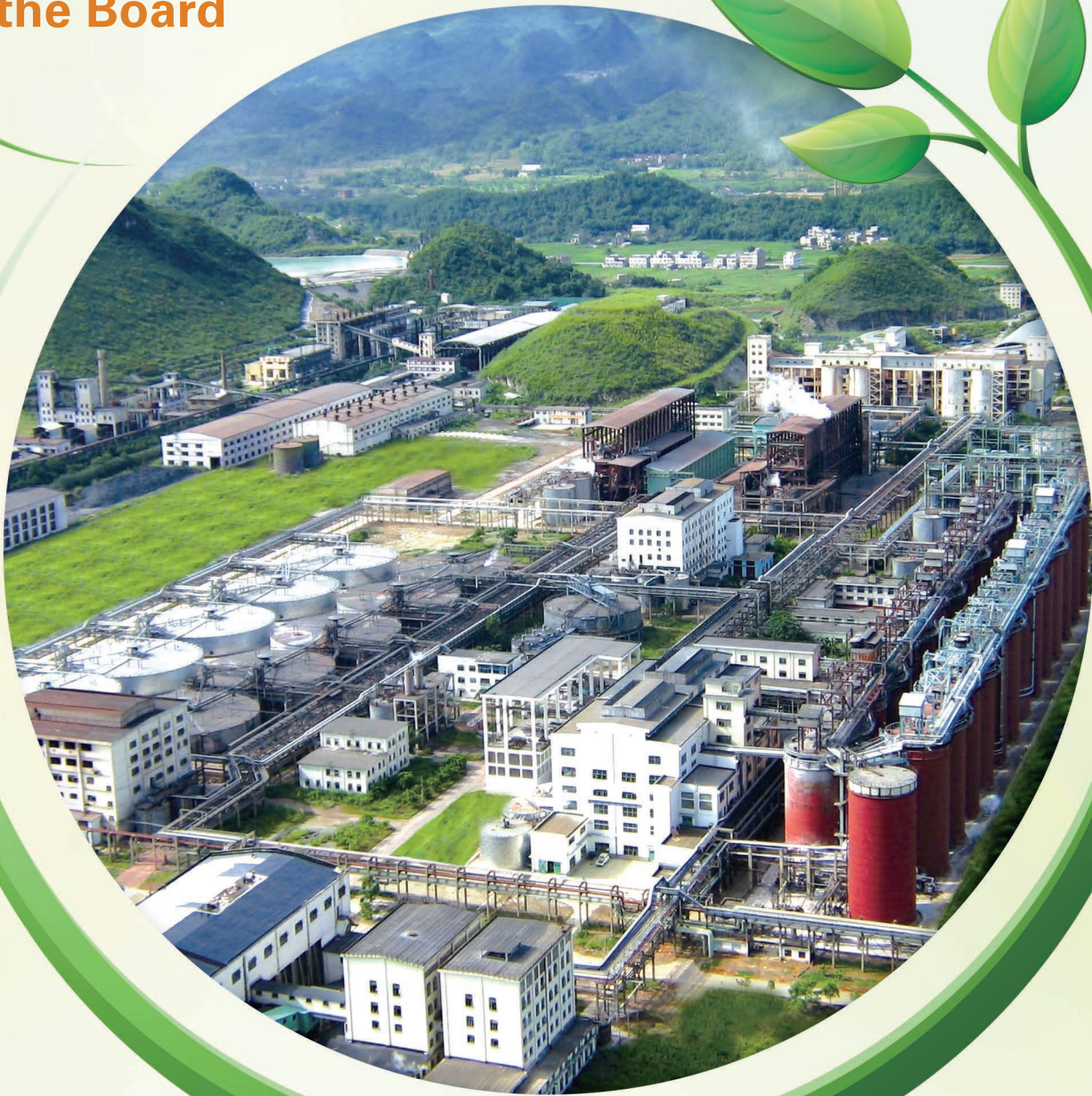
S&P Global Ratings raised the independent rating of the Company from BB- to BB



China Bond Rating upgraded the Company's credit rating from AA+ to AAA-, with a stable outlook

# 3

## Statement from the Board





## Statement from the Board



The Board of Directors of Chalco believes that the establishment and improvement of environmental, social and governance (ESG) management system can continuously promote the sustainable development of the Company. The Board of Directors of the company is the decision-making body for sustainable development, fully responsible for sustainability strategy and the overall deployment and promotion of the Company's ESG management.

The special committees under the Board of Directors supervise and manage ESG-related work. The Development and Planning Committee formulates corporate development plans in line with the ESG concept, and the Occupational Health, Safety and Environment Committee oversees various matters related to employee occupational health, safety and environment in our operation. The Audit Committee is responsible for risk supervision, management and audit, including ESG risks. The Social Responsibility Committee promotes the ESG work and implements various tasks and indicators of ESG management according to the *Implementation Rules of Social Responsibility Management of Aluminum Corporation of China Limited*. The Board of Directors shall regularly considers and reviews the reports of each committee on ESG work progress and offers guidelines on ESG work.

We have included ESG risk management into our daily risk management system. Under the guidance of the Audit Committee, various business departments and subsidiary production enterprises identify and prevent major production ESG risks, mainly including environmental risk, safety risk and operation risk. The Audit Committee will regularly review such risks and report to the Board of Directors about risk management.

Chalco sets annual environmental and social targets related to business operations. The Board of Directors reviews and discusses the establishment and completion of ESG targets. In 2022, the decisive action will be taken as making sure that electricity costs does not exceed the price raising bottom line of stage-price policy, which refer to the *Notice on Improving the Tiered Electricity Price Policy of Electrolytic Aluminum Industry* issued by the National Development and Reform Commission. The company will strive to achieve carbon peaking by 2025 and reduce 40% carbon emissions by 2035.

Chalco promotes sustainable development by developing effective strategies to balance our impacts on environment and society and business goals. Our ESG strategies are regularly reviewed by the Board of Directors to ensure their consistency with our development strategy. The Board of Directors also conducts regular materiality assessment on ESG issues. The process and results of assessment are detailed in the "Responsible Communication" of this report and are reviewed by the Board of Directors.

This report has thoroughly disclosed the above-mentioned environmental, social, and governance matters and has been reviewed and approved by the Board of Directors on March 22<sup>nd</sup> 2022.



# 4

## Social responsibility management

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## Social responsibility management



The Group's social responsibility governance aims to achieve a high level of sustainable development, and believes that a sound sustainability strategy can effectively contribute to the realization of long-term strategies and objectives, and seize opportunities and respond to risks brought about by sustainable development. To this end, Chalco actively integrates social responsibility into the day-to-day management system and assumes responsibility for various stakeholders including employees, customers, society, and the environment.

### 4.1 Social responsibility management system

Chalco adopts "Turning Stone into Gold and Benefiting Mankind" as the core value of social responsibility and "rewarding shareholders, empowering employees, benefiting customers and society, and cherishing the environment" as the Company's mission, effectively integrating social responsibility into the Company's business management system (CBS). We established a responsibility management system that achieves full coverage of the Company's main business units, released the *Social Responsibility Management Module of Aluminum Corporation of China Limited*, building up the responsibility management system, organizational system, documents system, and evaluation system. Five areas of responsibility are identified, which are corporate governance, employee rights and interests, environmental protection, fair operation, and community support. To clear the responsibility of five areas, the company identified the scope, entity, and indicators of social responsibility, as well as generated a negative list of over 80 prohibited items, were established.



## 4.2 ESG management system

Chalco has established a complete social responsibility management system consisting of sustainable development and ESG management in accordance with the *Implementation Rules of Social Responsibility Management of Aluminum Corporation of China Limited*.





## Social responsibility management (continued)

### 4.3 Responsible communication

#### 4.3.1 Stakeholder communication and response

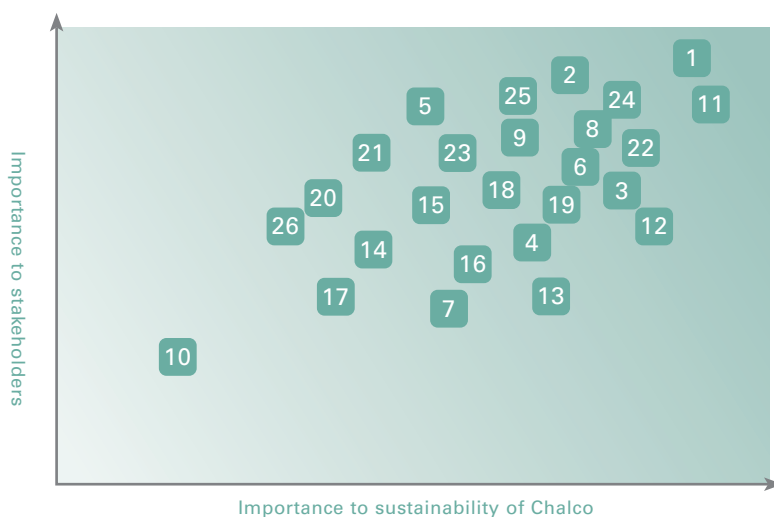
Chalco responds to the expectations and requirements of various stakeholders for our fulfillment of social responsibilities through this report and incorporates the opinions of various stakeholders into the management of corporate sustainable development. With open lines of communication, the Company fully considers the requirements of various stakeholders, maintains good communication with major stakeholders and takes appropriate actions in a timely manner to respond to their expectations.

Stakeholders	Communication Channels	Expectations and Concerns
Major Shareholders	Annual General Meeting, corporate announcements, on-site investigation	Protecting the rights and interests of shareholders, improving corporate governance, improving business performance, complying with laws and regulations
Governments and Regulators	Regular reporting and submission of information, regular communication with regulatory authorities, participation in meetings/seminars	Operating in compliance with laws and regulations, fulfilling tax obligation according to law, promoting local economic development, creating local job opportunities, ensuring occupational health and safety for employees, producing and operating safely
Employees	Workers congresses, suggestions boxes, participation in forums	Occupational health, remuneration and benefits, career development, employee caring
Customers	Business communication, Customer feedback	Sound quality assurance system, providing quality products and services
Peer Companies	Participation in industry Forums, visits and inspections with industry peers, inter-communications	Promoting industry development
Potential Investors and Financial Institutions	Listing information disclosures, briefings for investors, roadshows and reverse roadshows, briefings for analysts	Disclosing information timely, improving operating performance, profit distribution
Suppliers	Tender procurement, Seminars and conferences, entry requirements and Evaluation, on-site investigation	Health and safety, fair and transparent supply chain management
Communities	Charitable activities, stakeholder engagement	Improving community Environment, supporting community welfare, and rural revitalization



#### 4.3.2 Materiality identification and assessment

In 2021, Chalco conducted a stakeholder survey on the materiality of various environmental and social issues to better understand their opinions on the sustainable development of the Group and their response to our ESG priorities. As a supplement to the daily communication channels, this survey provides assistance and guidance to assess the materiality of ESG issues. The questionnaire is based on the regulatory requirements of the HKEX, combined with relevant domestic and foreign ESG standards and industry hotspots. We investigated the importance of 26 environmental and social issues to stakeholders and Chalco and produced a materiality matrix at the environmental and social levels (see below). We will discuss issues involved separately in each chapter of this report.



- |   |  |   |   |
|---|--|---|---|
| 1. Pollutant discharge management                     | 8. Environmental emergency prevention and response | 14. Fair competition                                    | 21. Customer privacy protection                             |
| 2. Ecological environment and biodiversity protection | 9. Land use and mining area reclamation            | 15. Supply chain management                             | 22. Sustainable profit growth                               |
| 3. Energy management                                  | 10. Use of packaging materials                     | 16. Leading industry and promoting industry development | 23. Corporate governance                                    |
| 4. Water management                                   | 11. Employee health and safety                     | 17. Community participation and contribution            | 24. Anti-corruption within the enterprise                   |
| 5. Renewable energy utilization                       | 12. Employee benefits and welfare                  | 18. Product quality control                             | 25. Transparency of financial and non-financial information |
| 6. Carbon emission management                         | 13. Staff development and training                 | 19. Innovation and R&D                                  | 26. Stakeholder engagement                                  |
| 7. Response to climate change risks and opportunities |  | 20. Intellectual property protection                    |   |



## Social responsibility management (continued)

### 4.4 Honoring responsibility

#### 4.4.1 Supporting UN Sustainable Development Agenda

In 2015, the United Nations officially adopted the *Transforming our world: the 2030 Agenda for Sustainable Development*, with 17 sustainable development goals (SDGs), aiming to end poverty everywhere, fight against inequality and injustice, address climate change, and other issues. Chalco is fully aware that the economic, environmental, and social challenges faced by humanity are daunting and SDGs cannot be achieved overnight. We take a global view to review our strategic development and daily operation management, pursuing harmonious coexistence with the environment, shared growth with society, and common prosperity with the whole world.

UN SDGs	Our Actions	UN SDGs	Our Actions
 <p><b>1 NO POVERTY</b></p>	Taking targeted poverty alleviation measures and helping children from poor families with education, medical care, employment	 <p><b>6 CLEAN WATER AND SANITATION</b></p>	Optimizing the water use structure, improving daily water conservation management, reducing the discharge of water pollutants, and safeguarding water resource security
 <p><b>2 ZERO HUNGER</b></p>	Facilitating agricultural transformation in rural areas and modernizing the agricultural environment	 <p><b>7 AFFORDABLE AND CLEAN ENERGY</b></p>	Promoting energy transition and vigorously developing renewable energy sectors such as photovoltaic power generation and wind power generation
 <p><b>3 GOOD HEALTH AND WELL-BEING</b></p>	Organizing various employee activities covering culture, sports and life, and promoting a work-life balance	 <p><b>8 DECENT WORK AND ECONOMIC GROWTH</b></p>	Protecting the rights and interests of employees, offering appealing employee development plans, and fostering employment quality advancement in the industry
 <p><b>4 QUALITY EDUCATION</b></p>	Making quality education available to children from poor families, and donating sports, learning and daily necessities to help children's growth	 <p><b>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</b></p>	Speeding up the process of key technology innovations and applications to provide strong support for high-quality development
 <p><b>5 GENDER EQUALITY</b></p>	Upholding gender equality in employment, and ensuring equal access to various rights and interests for all employees	 <p><b>10 REDUCED INEQUALITIES</b></p>	Ensuring equal access to the rights and interests of employees from different countries, races and cultures



Actively participating in community development and public welfare activities, and carrying out projects such as aid for Tibet and Qinghai, rural revitalization and charitable donations



Implementing responsible site selection, scientific mining, mining area reclamation, and construction of "green mines" for environmental protection



Consisting the technology innovation and enterprises application of clean energy, speeding up the clean energy distribution, reinforcing the concept of responsible mining



Optimizing the corporate governance capacity, improving the internal control system and legal system, and strengthening the construction of honest governance



Optimizing energy structure, increasing new energy consumption, conducting energy saving projects, mitigating climate change, and contributing to the national goals of "30.60"



Empowering partnerships, establishing efficient communication platforms, and creating a stable and sustainable supply chain



Adopting the water circulation system, achieving "zero discharge" of industrial wastewater, and reducing water pollution

# 5

## Corporate governance

- 23 Governance structure
- 23 Governance mechanism
- 25 Compliant operation
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- 27 Innovation-driven development
- 29 Integrity building





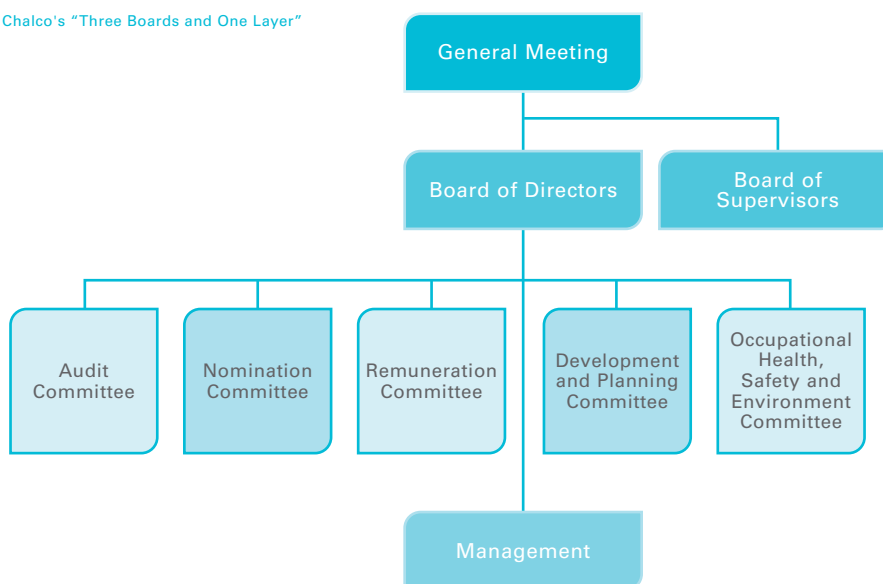
## Corporate governance

In line with national policies and regulatory requirements for listed companies, Chalco strives to optimize corporate governance. We set sight on establishing a modern enterprise system featuring well-defined power and responsibility, separation of government and enterprise, scientific management, and actively adapt to new situations and demands of the reform and development. Chalco builds and improves sound institutions and mechanisms, regulates power and responsibility in compliance with laws and regulations, focuses on main tasks based on the function category, improving the corporate governance structure of enterprises with their respective functions, responsibilities, coordinated operations, and effective checks and balances.

### 5.1 Governance structure

In 2021, Chalco continued to improve corporate governance capabilities, formulate clear corporate governance systems, rules of procedure, and work processes, and continued to deepen and improve the “Three Boards and One Layer” framework composed of general meetings, the Board of Directors, Board of Supervisors and management, and also other various governance systems. Meanwhile, Chalco committed itself to upholding a high level of corporate governance capabilities to effectively achieve sustainable high-quality development, and to reward society and stakeholders with excellent performance.

Chalco's “Three Boards and One Layer”



### 5.2 Governance mechanism

#### General Meeting

The General Meeting is the highest authority of Chalco, legally exercising its rights: to decide on the Company's management principles and investment plans; to review and approve profit distribution and loss recovery plans; and to revise the Company's constitution and the rules and procedures for general meetings, meetings of the Board of Directors and Board of Supervisors.

In 2021, the General Meeting of Chalco invited shareholders including institutional investors to organize two meetings and deliberated and approved 17 proposals.



#### Board of Directors

The Board of Directors is the decision-making body of Chalco for operations, accountable to the General Meeting. The Board of Directors legally exercises its duties, including but not limited to the following items: executing the resolutions of general meetings; deciding on the Company's development strategies, business plans, and investment plans; and formulating the Company's annual financial budget, financial statement, profit distribution plan, loss recovery plan, as well as any proposal to increase or decrease registered capital. The Board also determines basic management systems, including policies and processes for the management of risk, internal controls and compliance, equity incentive plans, as well as supervising the implementation of the Company's regulatory obligations.





## Corporate governance (continued)

As of the end of the reporting period, the Company's Board of Directors consisted of nine directors: Mr. Liu Jianping, Chairman; Mr. Zhu Runzhou, Mr. Ou Xiaowu, Mr. Jiang Tao, Executive Director; Mr. Zahang Jilong, Mr. Wangjun, Non-Executive Directors; Mr. Qiu Guanzhou, Mr. Yu Jinsong, and Ms. Chen Yuanxiu, Independent Non-Executive Directors. The Board held 10 meetings, reviewed and passed 52 proposals during the reporting period.

The Board of Directors has established an Audit Committee, a Nomination Committee, a Remuneration Committee, a Development and Planning Committee, and an Occupational Health, Safety and Environment Committee. External directors make up of the majority member of the Audit Committee, the Nomination Committee, the Remuneration Committee, and the Development and Planning Committee, and the chairman of the Audit Committee and the Remuneration Committee is a dependent director.

The office of the Board of Directors is the service organization of the Board of Directors, responsible for the daily affairs of the Board of Directors. It also provides decision support for the reference for the Board of Directors to make decisions, preparing monthly "Directors' Newsletter" with market information of the industry, production and operation of the Company, progress of key projects, etc. The office also reports to the external Directors of the Company on key matters from time to time. To ensure that the external Directors are kept abreast of industry and company-related information, the office arranges work research on the enterprises belonging to the Company. In 2021, the Company organized external Directors to carry out work research on the enterprises in Guangxi, which has provided the external directors, bettering their understanding of the production and operation, advantages and disadvantages and future development prospects of the alumina project of Guangxi Huasheng Port that supports the Company's bauxite project in Guinea. This move has provided support for the external Directors to participate in the decision-making of major matters of the Company. The independent Directors have given reasonable opinions and suggestions on how to further optimize the industrial layout and accelerate the adjustment, transformation and upgrading of industrial structure.

### Board of Supervisors

The Board of Supervisors is the Company's supervisory body, accountable to the general meeting. The Board of Supervisors legally exercises its duties to inspect and investigate the Company's financial and risk management and execution of internal controls, to supervise and appraise the performance of the Board of Directors, senior management, and their members, as well as to give opinions and make recommendations.

As of the end of the reporting period, the Board of Supervisors consisted of five Supervisors, including Mr. Ye Guohua, Chairman of the Supervisory Board, Ms. Shan Shulan, Ms. Lin Ni, Mr. Guan Xiaoguang, and Mr. Yue Xuguang, Supervisors. In this reporting period, the Company held five supervisory meetings, to review the Company's regular financial reports, execution of internal controls, and other relevant important issues. A total of 14 proposals were reviewed and approved.

### Management

Management is in charge of the Company's production and operation management, organizing the implementation of the Board of Directors' resolutions and the Company's development strategies, annual business plans, investment plans, financial budget plans, as well as formulating and carrying out performance appraisals and the remuneration incentive schemes. The Board of Directors reviews the functions and performance of management to protect the interest of the Company as a whole. The management of the Company reports to the Board of Directors or the Board of Supervisors the signing and implementation of the Company's major contracts, the use of funds, and the profit and loss situation.

As of the end of 2021, our top executives include Mr. Zhu Runzhou, President; Mr. Wang Jun, Chief Financial Officer and Secretary of the Board; and Mr. Wu Maosen, Mr. Jiang Tao, Vice President.



Organized **2**  
General Meetings  
for shareholders  
Reviewed and  
approved  
**17** proposals

Held **10**  
Board meetings  
Reviewed and  
approved  
**52** proposals

Held **5**  
Supervisory meetings  
Reviewed and  
approved  
**14** proposals



The external Directors of the company investigated Guangxi Huasheng

### 5.3 Compliant operation

Compliant operation is the cornerstone of stable corporate development. The Company established a comprehensive internal control system and a monitoring-evaluation mechanism, and has established compliance audit mechanisms with establishment, revision, abolition, and implementation as the core systems.

#### Improving internal control system

Chalco vigorously strengthens the construction of internal control system to reduce the risks in operational activities. This year, the Company further updated and improved its internal control system. Under the guideline of “closely following the supervision trend and benchmarking world-class enterprises”, the Company comprehensively sorted out the institutional construction of fundamental management aspects in its internal control system. Specifically, we analyzed the soundness of the system, strengthened the construction of relevant systems, and built a “comprehensive internal control” system featuring diverse standards, comprehensive coverage, top-down coordination, and collaborative promotion. The main tasks include:

##### Establishing a top-down organized operating framework and a complete set of internal control standards

and adopting a “standard-centered” approach to promoting the organization of control activities tailored for relevant enterprises, and forming a “1+N” internal control standard structure unique to the enterprise

##### Addressing the fragmented process in the original system

to align the important management process of the headquarters with the processes of subordinate entity enterprises, clearly demonstrating the authority of the process at all levels through the flowchart, and realizing the effective connection between the same process at different levels of the Company.

Under the guidance of the new system, the Company strengthened the self-evaluation of internal control, organized mutual inspections among over 20 enterprises, and conducted unannounced check for high-risk area, based on which the Company formulated the *2021 Internal Control Evaluation Report*.

#### Consolidating compliance system building

The Company has a sound compliance management system to ensure compliant operations, which consists of the following three levels:



## Corporate governance (continued)

In 2021, we made great strides in corporate governance in compliance with relevant laws and regulations through the following major measures:

- By promoting the intensive construction of legal system, an aggregated legal system has been established, continuously improving the legal risk prevention mechanism;
- By strengthening legal review, legal institutions have given full play to the role of ensuring law-based governance of the enterprises and supporting enterprise operation and development in many major matters, so that the legal and compliant operation of enterprises have been ensured;
- Conducting special training on criminal law knowledge to high-level management<sup>1</sup> organizing and carrying out the examination of Legal Compliance Knowledge for leaders of all levels of the Company, cooperating with the Central Inspection of Ecological and Environmental Protection to conduct rectification, and focusing on strengthening the assessment of such aspects as environmental protection and safe production.

The company also promoted the usage of standardised contract framework to reduce the legal risk from non-compliant contracts, and organized relevant departments of the Company to conduct top-down legal training in order to raise the awareness of law compliance. The company also compiled a *Legal Compliance Knowledge Manual* for management leaders, involving laws, safe production, environmental protection, illegal investment, and operations.

### 5.4 Risk management

To continuously improve the risk control ability, the Group has established top-down risk identification and management system for operational risks including ESG-related risks:

#### Board of Directors and its Audit Committee

Undertaking guidance, supervision and audit management in risk management, and regularly discussing the specific implementation of risk management and internal control with the Management;

#### Risk Management Committee

Reviewing our comprehensive risk management system and validating the identification results of annual major risks and prevention strategies. The Chairman of the committee is the Chairman of the Board, and the main heads of all departments are its members;

#### Centralized Departments of Risk Management

Organizing and coordinating our comprehensive risk management;

#### Functional Management Departments and Subordinate Enterprises

Complementing and monitoring of risk management.

This year, the Company formulated major risk prevention and control plans, adopted dynamic management modes, and required relevant departments and enterprises to report major emergency business risks promptly, including the “dual control”<sup>2</sup> policies of energy consumption and power consumption restriction. The Company also encouraged relevant departments and enterprises to put forward risk management suggestions to the management, and received a total of 28 relevant suggestions this year. To implement risk original-led safety responsible mechanism, the company also re-aligned the important risk list, guided the Company’s branches and subsidiaries to conduct risk original-led, including liquid ammonia station and red mud storage station, responsible list and performance manual.

<sup>1</sup> High-level management refers to directors, supervisors and senior management

<sup>2</sup> The “dual control” policies of energy consumption refer to the *Dual Control System of Total Energy Consumption and Energy Intensity* released by the National Development and Reform Commission (NRDC).

## Risk management achievements

In 2021, Chalco achieved obvious progress in risk control by strengthening basic management, resolving prior issues and responding changes in macro landscapes. The main achievements include:

### Vigorously rectifying environmental risks

- Coordinated efforts were made to promote the rectification of Central Inspection of Ecological and Environmental Protection. By the end of the year, 76 issues were planned to be rectified, with a completion rate of 84.4%.
- The upgrading and transformation of pollution and carbon emission reduction were conducted, and the online monitoring of all waste gas and wastewater discharge data was realized; the environmental protection knowledge training for employees at all levels was organized to enhance their awareness of environmental protection;
- the environmental protections including compliant dispose of industrial waste water, waste gases, solid wastes, hazardous wastes and resources consumption were conducted.

### Strictly preventing operational risks

- In this regard, the Company prudently dealt with the complicated political situation in Guinea and won the battle of emergency handling of overseas projects; In addition, the Company actively responded to frequent power restrictions, environmental control, market shocks and extreme weather, and minimize the impact on production and operation, thus improving the ability to prevent operational risks.

### Risk management achievements

### Comprehensively lowering the safety risks

- Through revising and improving three major production safety regulations, standardizing equipment accident investigation and handling, strengthening employees' safety skills training, deepening the action themed "three respects and three violations"<sup>3</sup> and human-face recognition system for contractors, the safety risks in the operation of the Company will be identified and handled properly to refine risk management;

## 5.5 Innovation-driven development

Guided by the policy of "boosting the principal role of enterprises in innovation, and comprehensively improving innovation capabilities of enterprises" put forward in China's 14th Five-Year Plan, Chalco pursues development based on scientific and technological innovation and continuously optimizes the mode of scientific and technological development.

### 5.5.1 Policies on scientific and technological innovation

In 2021, Chalco formulated a policy on investment in scientific and technological development, which focuses on serving the national strategy and business development, in a bid to build a high-level scientific research platform by gathering advantageous resources and continuously improving the Company's capability of independent scientific and technological innovation. The Company has also been increasing its input in scientific research in the hope of accelerating to produce several major leading scientific and technological achievements with great application value and making every effort to build Chalco into a source of original technology in the global aluminum industry.

<sup>3</sup> The "three respects and three violations" refers to "respecting life, law and responsibility, and combating illegal command, illegal operation and violation of labour discipline"



## Corporate governance (continued)

The Company has carried out a comprehensive reconstruction of the innovation system, prepared the *Science and Technology Development Plan during the 14th Five-Year Period*, formulated the *Scientific and Technological Innovation Work Plan of Aluminum Corporation of China Limited*, and defined 12 key topics for scientific and technological research, covering energy saving and carbon emission reduction, high-end material development, and comprehensive utilization of resources. The Company established Chalco Green Metallurgy Research Institute and the first batch of six technology centers such as the Electrolytic Aluminum Energy Conservation and Carbon Reduction Center, through integration and optimization of internal resources. The Company has preliminarily established a leading scientific and technological innovation system that can provide strong support for high-quality development, under which the Company's headquarters cooperates with the Central Research Institute to carry out scientific and technological R&D layout, other specific research institutes are responsible for making cutting-edge breakthroughs, technology centers are responsible for industrial experiments and industrialization demonstration, and entity enterprise implements the transformation of scientific and technological achievements.

The Company moves forward with various R&D projects on green and high-quality development and has successfully developed the production technology of aluminum hydroxide for new energy vehicles (NEVs), the red mud separation technology, the disposal and utilization technology of aluminum ash, overhaul slag and carbon slag, as well as the enhanced alumina production and disposal technology with secondary aluminum ash. In response to the national call for the "carbon peak and carbon neutrality", the company put more efforts to low-energy and low carbon technology development and application, which created a solid foundation for the industry-leading AC power consumption indicator of electrolytic aluminum from primary aluminum.

### 5.5.2 R&D management structure

To continuously improve scientific and technological innovation capacity, the Company's Science and Technology Development Department takes the role of overall planning of the Company's science and technology development and improving R&D management mechanism, and established a top-down management structure for science and technology development:

Central Research Institute	It is mainly responsible for the top-level design, organization and implementation, and project evaluation of major scientific research projects, and assists the Scientific and Technological Innovation Department of the Group in planning and research, preparation of an annual R&D investment plan.
Technology and Development Department of Chalco	According to the overall arrangement of the Group's scientific and technological R&D work, it is mainly responsible for its own strategic unit's top-level design and planning of scientific and technological innovation, annual budget and plan, funding guarantee of R&D investment, project organization, and implementation, evaluation, and assessment of innovation ability.
Technology Centers/Entity Enterprises (Project Undertaking Units)	They are mainly responsible for providing test platforms, human resources, and other resource guarantees, carrying out scientific and technological R&D activities, and cooperating with project evaluation, supervision, and inspection.

The Company has formulated and implemented science and technology management systems, including *Science and Technology Management Mechanism of Aluminum Corporation of China Limited (trial version)*, *Science and Technology Project Management Mechanism of Aluminum Corporation of China Limited* etc., reformed the organization and management mode of major science and technology projects, and established the competition mechanism to select the best candidates to undertake key research projects; Using social resources, the Company has undertaken three new science and technology R&D projects sponsored by the government. The Scientific Reform Demonstration Action initiated by the Zhengzhou Research Institute was carried out smoothly, and the ability of transforming technical research and services has been improved, which promoting scientific and technological innovation across the board from the system, technology, and economy.

The Company adjusted and optimized the classification and management mode of R&D projects, which are mainly divided into:

- **Chalco's R&D Projects of Strategic Technology** : Technology R&D and industrialization demonstration to lead the development of the industry and solve the technical problems that seriously constrain the development of the industry.
- **Chalco's R&D Projects of Major Technology**: The development and industrialization demonstration of new processes, new equipment, and new products to solve the Company's major, common and key technical problems.
- **Independent R&D Projects of Enterprises** : New technology development and application carried out by the Company's branches and subsidiaries according to their production and operation needs.

### 5.5.3 Achievements of technological and scientific innovation

In recent years, focusing on the transformation and upgrading, The Company has accelerated the breakthroughs in key scientific research projects as well as the transformation and application of research achievements. There are 13 member units of the Company were recognized as National High-tech Enterprise, and Zhengzhou Research Institute is the only “China GHG Voluntary Emission Reduction Program Reviewing and Approving Agency” in the non-ferrous industry. In 2021, the China Nonferrous Metal Industry Association appraised the development and application of *the technology of Byren production method containing carbon impurity control* and the technology of *low-cost with high quality carbon anode production based on high efficient usage from waste anode* as international leading, and the other three development and application of the technologies, including *preventing explosions from aluminum electrolyzer short circuit* were appraised as achieving international advanced level.

*(For more information about the application of major scientific achievements in safety guarantee, environmental protection and carbon emission reduction, please refer to Chapter 6 “Scientific management to ensure operational safety” and Chapter 7 “Scientific and technological innovation to pursue green development”)*

## 5.6 Integrity building

The Company attaches great importance to improving the building of the Party working style and honest governance and implements corresponding accountability systems. The Company strives to fulfill its responsibilities, make working practice improvements, embrace thematic learning, integrity education, supervision and inspection to deeply carry out an anti-corruption campaign.

### 5.6.1 Anti-corruption management system

Chalco has established a collective decision-making mechanism and an accountability system for honest practices, which improved the credit management system, and gave full play to the supervisory role of discipline inspection and supervision departments at all levels. The Company also established a “Big Supervision”<sup>4</sup> system and a Supervision Committee, and has paid more attention to business supervision, closely integrated the construction of honesty with production and operation, and carried out the prevention and control of major corruption risks. Continuous risk controls in all aspects of the operation have been carried out to effectively prevent and investigate corruption and commercial bribery cases.

### 5.6.2 Anti-corruption management protocols

Chalco strictly abides by the *Anti-Money Laundering Law of the People’s Republic of China* and *Code of Conduct on Moral Integrity and Self-Discipline of the Communist Party of China* and *Interim Provisions on Banning Commercial Bribery* and other relevant national laws and regulations. In 2021, the Company studied and formulated a series of systems and policies such as the *Rules of Procedure of the Disciplinary Inspection Committee* and the *Key Points for the Construction of Party Working Style and Honest Governance and Anti-corruption Work in 2021*, to further standardize the proceedings of the Commission for Discipline Inspection. To strengthen the construction of honesty and anti-corruption work, the Company requires directors and employees to strictly abide by the *List for Due Diligence, Exemption, and Compliance* and the *Rules for the Implementation of Honest Practices of Leaders*, targeting supervision and discipline enforcement priorities. Chalco has strengthened the supervision and rectification in key areas and established a ledger for monthly supervision. Given key problems such as legal disputes, safe production, and “seeking personal gain as a result of position in the company”<sup>5</sup>, the Company has strengthened supervision and inspection, consolidated governance responsibilities, improved the patrol-supervision system, supervised and guided enterprises to pay close attention to the rectification of the problems identified in the patrol-supervision feedback. During the reporting period, the Company did not commit any violations with significant impacts on the Company pertaining to bribery, extortion, fraud, or money laundering. Neither had the Company been involved in any corruption cases.

The Company highly emphasizes the fight against corruption among its suppliers. To improve the capabilities of anti-corruption audit to suppliers, the Company’s Legal compliance department compares the suppliers with the suppliers on the trade-forbidden listed in the *Affiliated Companies Owned by relatives of cadres (Chalco Party Discipline No. [2018]167)*, which prevent affiliated companies owned by relatives of cadres to become the Company’s suppliers. The Company and its branches and subsidiaries strictly implement the *Notice on Releasing the Samples of Common Contracts (First Edition)*, incorporate the *Honesty and Integrity Contract* as an integral part of the business contract and safeguard the legitimate rights and interests of both sides by regulating employees to maintain honest practices and observe law and discipline. The company also requires the disclosure of supervising and whistleblowing channels from both sides in the contract to strength the supervision of anti-corruption by each other.

<sup>4</sup> “Big Supervision” System refers to a comprehensive and three-dimensional supervision system with a vertical supervision chain divided by business units and the horizontal alliance of supervision departments. It aims to integrate the intra-party supervision and corporate management supervision, give full play to the two advantages of Party building and corporate governance, and enable various supervision forces complementary to each other, with focus on the weak links in the development of enterprises and study how to rectify problems.

<sup>5</sup> “seeking personal gain as a result of position in the company”: It refers to an illegal act of a person who takes advantage of his or her position and power in the enterprise where he or she works to seek benefits for others in terms of product supply, project coordination and job transfer, and accepts bribes of great value alone or in collusion with relatives, classmates and other specific related persons.

## Corporate governance (continued)

### 5.6.3 Anti-corruption capacity building

In 2021, the Company continued to carry out various work in anti-corruption capacity building, mainly including:

- Carrying out publicity and education on the construction of Party working style and honest governance, and including anti-corruption in the education and training of managers as an important theme;
- Organizing and holding a warning education conference on the construction of Party working style and honest governance, with 1,326 participants, including the Company's Board;
- Organizing and holding the first warning education conference on the construction of Party working style and honest governance by the Party committee of the Company, and announcing the typical cases of violations of the discipline, laws, and regulations recently investigated and handled among the Company and its affiliated enterprises;
- Collecting the cases of violations of the discipline and regulations investigated and handled in recent years, among which over 20 typical cases were selected, and included in the *Selected Cases Violating the Central Party Leadership's Eight-point Decision on Conduct*, which was distributed to more than 170 employees and all the enterprises in the form of the electronic version, to educate employees with stories around them;
- Organizing "Anti-corruption Publicity and Education Month" activities, and organized more than 90 Party members from the headquarters of the Company and other units in Beijing to receive warning education at the Law Publicity and Education Center, to constantly reinforce the awareness of honesty of Party members and managers.

The Company also organized three warning education conferences on the construction of the Party working style and honest governance, attended by more than 2,500 people in total.

The *Regulations on Anti-fraud Work of Aluminum Corporation of China Limited*, which specifies that a permanent body shall be set up for anti-fraud work, fully mobilizing the public reporting force by setting up complaint reporting channels such as telephone, e-mail, and letterbox in the Discipline Inspection and Supervision Department and the Internal Audit Department. The Company handles the reporting work through process management, establishes written procedures and systems to regulate how to accept, retain and handle accusations and reporting from the real-name or anonymous employees and the real-name or anonymous external third parties, and keeps written records for the inspection of the senior management, Audit Committee, Board of Supervisors and Board of Directors. The Company also pays special attention to the protection of whistleblowers. The Regulations stipulate that the anti-fraud work shall be in the charge of the designated personnel, the reported information and whistleblowers should be kept strictly confidential, to strictly protect their privacy and ensure the execution of their legitimate rights and interests.



# 6

## Pursuing scientific management to ensure operational safety

- 33 Diversified safety management system
- 34 Comprehensive safety management measures





## Pursuing scientific management to ensure operational safety



Chalco always upholds the concept of safe development and adheres to the principles of “safety first, emphasizing prevention and comprehensive management”, to prevent and resolve major safety risks from the source. The Company also gives top priority to production safety, and constantly improves and optimizes management systems and measures.

The Group strictly abides by relevant laws and regulations, including the *Law of the People’s Republic of China on Work Safety*, the *Law of the People’s Republic of China on Prevention and Control of Occupational Diseases*, and the *Law of the People’s Republic of China on Mine Safety*. In 2021, the Company revised multiple manuals, including the *Working Rules of the Occupational Health, Safety and Environment Committee of Aluminum Corporation of China Limited* and the *Headquarters Occupational Health, Safety and Environmental Responsibility System of Aluminum Corporation of China Limited*. We also released new regulations, such as the *Working Rules of Supervision of Occupational Health, Safety and Environmental Protection of Aluminum Corporation of China Limited*, the *Notice on Strengthening the Report, Investigation, and Handling of Major Equipment Accidents*, and the *Regulations on Investigation and Handling of Equipment Accidents of Aluminum Corporation of China Limited*.

In 2021, the Group achieved the safety production goal of zero major and above production safety accidents set, including contractors, and reduced production safety accidents by 33%. The Company also helped its subsidiaries improve the construction of safety standardization, and assisted its five subsidiaries to pass the acceptance of the First-level Enterprise of National Safety Standardization.

On this basis, Chalco formulated more detailed safety production targets for 2022:

The major and above production safety accident of the Company is

0

The production safety accident of the enterprises is

0

The rate of safety certificate holders is

100%

The signing rate of safety production responsibility letters by employees is

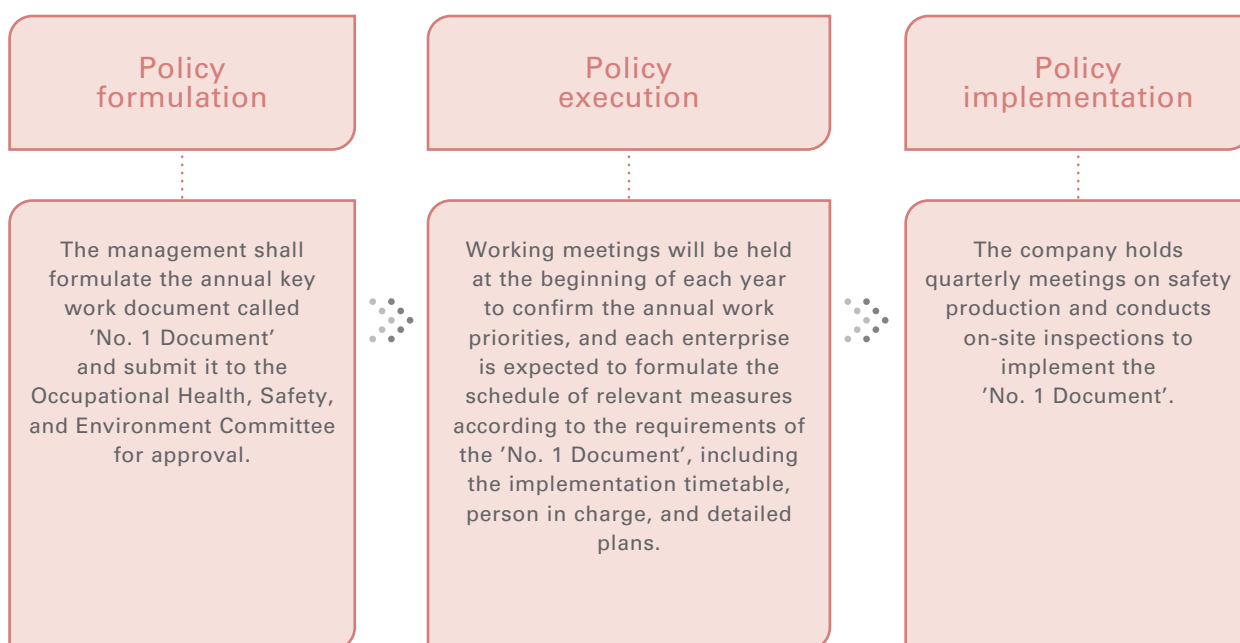
100%

## 6.1 Diversified safety management system

The Company strictly takes control over safety in all aspects of production. The Occupational Health, Safety, and Environment Committee is responsible for regularly studying safety issues in the production environment and relevant risks. The responsibilities of the Committee are as follows:

- Resolutely publicizing and implementing national laws and regulations, standards and norms on occupational health, safety, and environmental protection, as well as supervising the execution of regulations and management rules on occupational health, safety, and environmental protection that applied to the Group;
- Studying and reviewing the middle-and-long-term development strategies of the Company on occupational health, safety, and environmental protection, and annual objectives and implementation plans of occupational health, safety, and environmental protection;
- Studying major issues concerning occupational health, safety, and environmental protection work of the Company;
- Reviewing the standards and regulations on occupational health, safety, and environmental protection;
- Reviewing the accident investigation and handling reports of the subsidiaries as well as the handling opinions and suggestions of relevant responsible units and personnel.

The Company has put in place an effective mechanism to formulate, execute and implement safety policies, assigned relevant responsibilities to each post and person in charge, and conscientiously achieved the management principles featuring practical targets which are easy to supervise.



The Company compiled the post-based operating safety risk identification and prevention handbook, based on the character of each post including electrolytic aluminum, alloy casting, anode assembly, anode carbon, logistics warehousing. The handbook comprehensively introduced the risks from posts and operation steps, and analysis the potential hazards from this risks, which form a safety management mechanism with a process including 'risk identification – risk control and reduction – prevention and eliminate accident'. This mechanism provides targeted, practical and operational methods to protect safety for post operations.

## Pursuing scientific management to ensure operational safety (continued)

The Company promotes the building of the occupational health, safety, and environmental protection precision management system named CAHSE system, and strictly conducts production safety management and occupational health management among all employees. We carry out regular and irregular supervisions on key safety issues and the implementation of safety management for relevant enterprises. If any problems are identified, we will assist enterprises with rectification. The Company carries out acceptance sampling on its subsidiaries and organizes cross-checks across its subsidiaries, to ensure production safety.

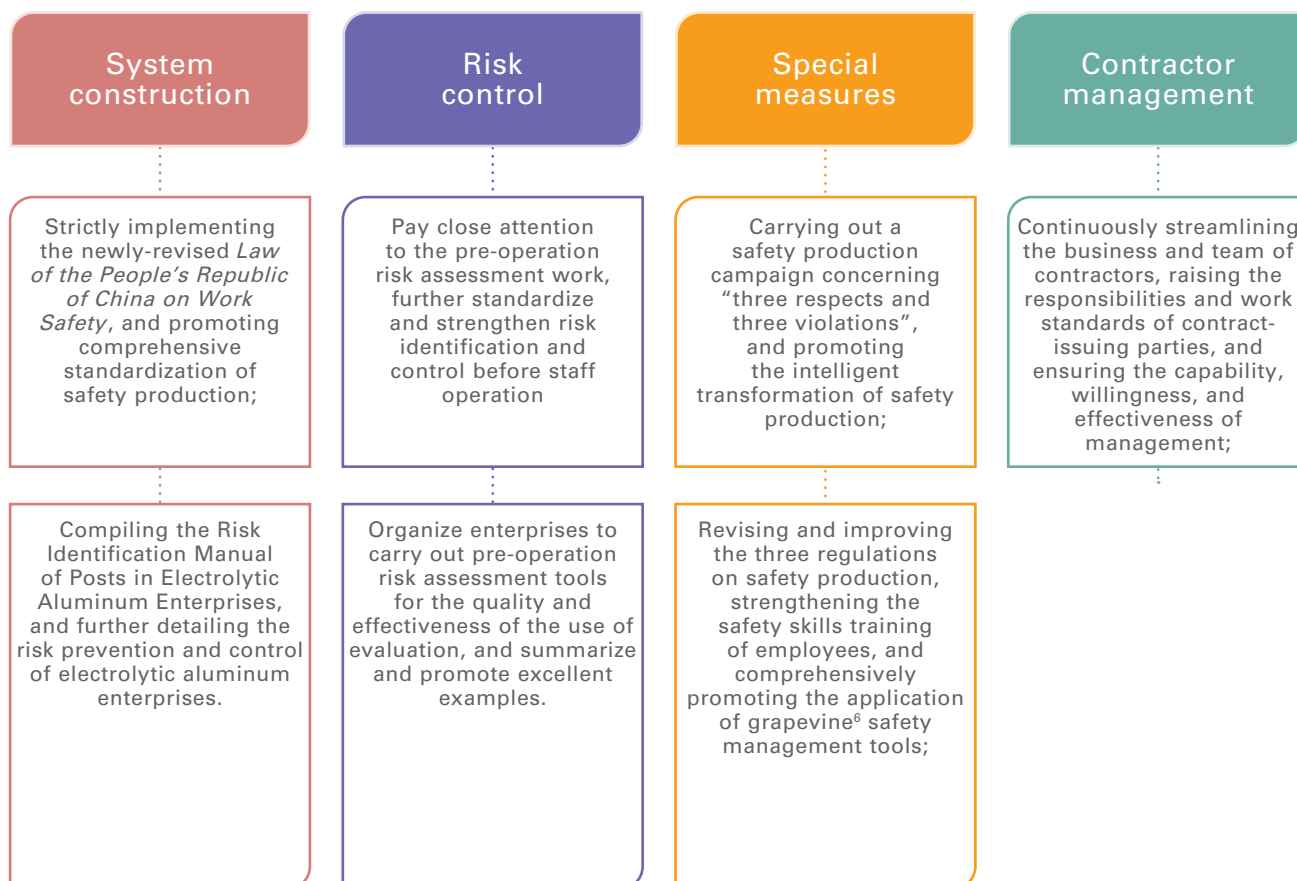
### Case

#### Audit Optimization of the CAHSE System

In 2021, Chalco conducted CAHSE system audits on its branches and subsidiaries, with the help of five methods, namely enterprise self-evaluation, cross safety check and audit, random inspection and audit, daily process management assessment, and comprehensive result evaluation. Based on the implementation results of specialized safety work, the Company also made a comprehensive evaluation of each enterprise. This year, all enterprises met the requirements of the Company in terms of comprehensive evaluation.

### 6.2 Comprehensive safety management measures

Chalco safeguards the health and safety of employees in the production and operation of the Company, its subsidiaries and contractors through sound systems and diverse management measures. The Company has adopted management measures including the *Regulations on Strengthening Safety Supervision and Management of Aluminum Corporation of China Limited* and the *Comprehensive Emergency Plan for Emergency Incident of Aluminum Corporation of China Limited*. This year, the Company improved the safety management measures in all aspects of operation, mainly including:



<sup>6</sup> Chalco Logistics held the training on grapevine safety management tool application: [https://zlw.chinalco.com.cn/xwzx/gsxw/202103/t20210304\\_76965.html](https://zlw.chinalco.com.cn/xwzx/gsxw/202103/t20210304_76965.html)

### Carrying out a safety production campaign themed “three respects and three violations”

#### Case

Chalco launched a safety production campaign consisting of eight measures, including target setting, inspections on improper behaviors, combating the “three violations” among the staff, and investigating the “three violations” via video. The campaign targeted illegal operations related to personnel and equipment. In 2021, the Company identified and rectified 49,453 safety hazards of various types under video supervision systems, leader inspections and enterprise self-inspection. Focusing on key and difficult issues, the Company organized the enterprises involved to address 18 key issues and eliminated several long-standing safety risks.

## 6.2.1 On-site engineering safety management

The Company lays great emphasis on production safety and released a series of management methods for its main production sites, such as the *Regulations on Major Mine Disaster Prevention Management of Aluminum Corporation of China Limited*, the *Regulations on the Reporting and Submission Management of Coal Mine Safety Related Information of Aluminum Corporation of China Limited*, and the *Regulations on the Supervision Management of Major Hazard Source for Energy Enterprises of Aluminum Corporation of China Limited*. In 2021, the Company conducted comprehensive risk investigations and rectifications of safety hazards on construction sites, mainly including:



### Intelligent transformation for safety production – building “unmanned” intelligent plants

#### Case

To ensure on-site safety and reduce cost, the Company has been engaging in building “unmanned” intelligent plants and adopting centralized management for production operations, thus transforming the information management mode from “remote control” to “centralized control”. At present, the intelligent plant benchmark enterprise has taken shape at the first stage, with intelligent production systems and conditions to be replicated.

## 6.2.2 Contractor safety management

Chalco attaches great importance to the safety management of contractors. The Company issued the *Regulations on the Management of Outsourcing in the Production Field of Aluminum Corporation of China Limited* and the *Notice of the Aluminum Corporation of China Limited on Increasing the Safety Rigid Constraint Clauses of Outsourcing Contracts* and other contractor safety management systems, which require that all branches and subsidiaries of the Company follow national laws and regulations, the parent department and Chalco’s relevant provisions on contractor safety management and safety control, include contractors into the Company’s safety production management system, and adhere to “leadership responsibility, direct responsibility, territorial responsibility, and supervisory responsibility”. This year, in accordance with the “three unification”<sup>7</sup>, namely unified requirements, unified standards and unified training<sup>2</sup>, the Company strengthened the safety access, safety inspection and safety assessment for its contractors, and also organized special trainings on strengthening the safety management of its contractors. The Company promoted the construction of the contractors’ access system and required all consigned personnel of each enterprise to pass safety education examinations. After relevant departmental approval, the personnel-related information will be imported into the access system and the relevant personnel will be allowed access to the production areas. In this way, the safety risks brought by the operators who are sent by the contractors and conduct improper operations will be eliminated.

<sup>7</sup>

The “three unification” refers to “requirement unification, standard unification and training unification”



## Pursuing scientific management to ensure operational safety (continued)

### 6.2.3 Safety awareness training

Chalco focuses on fulfilling its corporate responsibilities, enhancing production safety awareness among its employees, and creating a safe corporate culture for employees. This year, the Company held various training activities to enhance the safety management awareness of employees, mainly including:

- Two training sessions with the theme of “overcoming three shortcomings (inadequate safety management ability, awareness and operation safety evaluation failures), strengthening risk control, and deepening two grasps (group meetings and training), two inspections (inspections on violations and hidden dangers), and stringent supervision” were held for the grassroots safety and environmental protection management backbone. A total of 195 workshop directors, team leaders, and grassroots managers participated in the training.
- Relevant departments also prepared new training courses based on the newly-revised *Law of the People’s Republic of China on Work Safety* and issued them to relevant enterprises for study and publicity. The training course was interpreted at the expanded meeting of Chalco Party Committee Center Group, to further enhance the safety awareness of managers at all levels.
- Organizing and participating in the National Safety Knowledge Network Competition, totaling 1,441,302 enrollments.
- Organizing safety-related training and examination, totaling 65,404 enrollments during the “Safe Production Month”.



The number of enrollments participating in the National Safety Knowledge Network Competition is

**1,441,302**



The number of enrollments participating in the safety-related training and examination is

**65,404**



trainings during the “Safe Production Month”

#### 6.2.4 Safety management performance

This year, three production safety accidents occurred in the Company, all of which have been dealt with in strict accordance with the *Measures for the Management of Pre-Production Safety Accountability and Accident Investigation and Handling of Aluminum Corporation of China* (Chinalco Comprehensive [2019] No. 564).

Statistics of work-related accidents and deaths in the past three years:

	2019	2020	2021
Number of work-related deaths (person)	8	2	3
Ratio of work-related deaths <sup>8</sup> (%)	0.012	0.003	0.005
Number of working days lost <sup>9</sup> (days)	48,000	12,000	18,000

The cases of safety-related death happened in this year relates to inappropriate management of mine operations, equipment maintenance, and warehouse safety. The Company took immediate actions by following relevant rules to deal with these cases, and ensured the cases were properly resolved. The company also promptly revised and improved management measures, checked similar risks and organized safety trainings to avoid the relevant cases in the future.

<sup>8</sup> The proportion of work-related deaths: Number of work-related deaths of the year/Total number of employees at the end of the year.

<sup>9</sup> The number of lost work days due to accident injury shall be calculated in accordance with the *Lost Work Days Standard for Injury Accidents (GB/T 15499-1995)* and the *Classification for Casualty Accidents of Enterprise Staff and Workers (GB 6441-86)*.

# 7

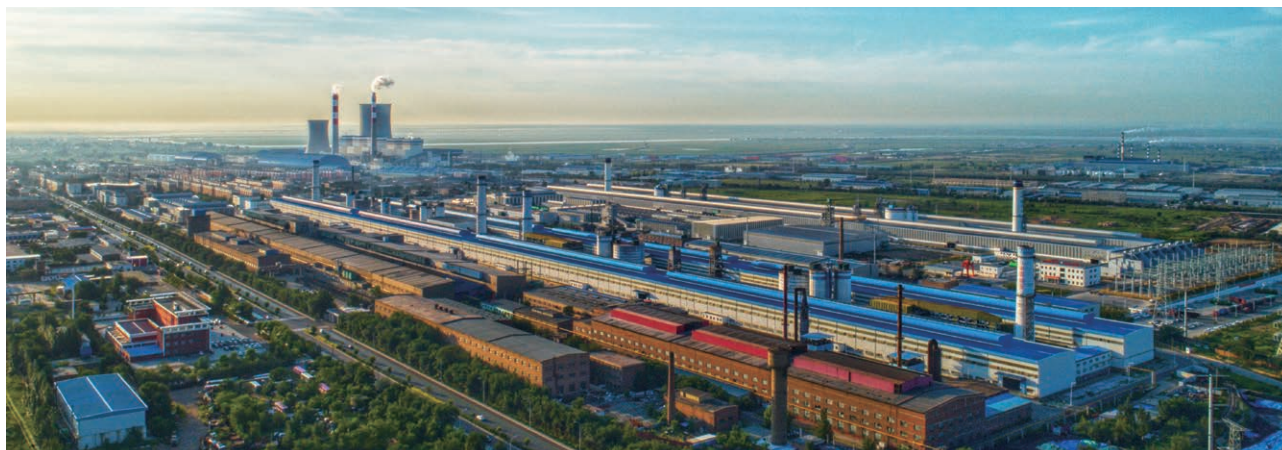
## Promoting scientific and technological innovation to pursue green development

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## Promoting scientific and technological innovation to pursue green development



Chalco recognizes the importance of ecological and environmental protection, upholds the concept of green development, and strives to improve the environmental management system. We are involved in the nationwide battle to prevent and control pollution, accelerate the energy transformation, and unswervingly pursue green, low-carbon, and sustainable development. We also resolutely implement the concept of "lucid waters and lush mountains are invaluable assets".

Chalco strictly abides by various environmental protection laws and regulations of the country and the place where it operates, such as the *Environmental Protection Law of the People's Republic of China*, the *Cleaner Production Promotion Law of the People's Republic of China*, the *Water Pollution Prevention and Control Law of the People's Republic of China*, the *Law of the People's Republic of China on the Prevention and Control of Air Pollution*, and the *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Wastes*. We keep improving the environmental management system, vigorously promoting environmental protection governance, actively researching environmental protection related policies, and formulating the Company's special plans for environmental protection during the "14th Five-Year Plan" period.

In 2021, Chalco successfully achieved the environmental targets set in 2020 and formulated more detailed and wide-ranging environmental targets:

Indicator		Base year	Target description
Greenhouse gas	Alumina sector	2021	In 2022, the CO <sub>2</sub> equivalent emission per ton of production of alumina sector will be reduced by 1.28%.
	Electrolytic aluminum sector	2021	In 2022, the CO <sub>2</sub> equivalent emission per ton of production of electrolytic aluminum sector will be reduced by 0.10%.
	Total greenhouse gas emissions	2021	In 2022, the total amount of CO <sub>2</sub> equivalent will reduce 70 million tons under the same amount of yield
	Total coal consumption	2021	In 2022, the total coal consumption will be reduced by 2.80%.
Energy	Averaged electricity consumption of aluminum molten synthesis AC power consumption (excluding desulfurization power consumption)	2021	In 2022, 2023 and 2025, the averaged electricity consumption will not exceed 13,650 kWh <sup>10</sup> , 13,450kWh and 13,300 kWh
Water resource	Discharge of industrial wastewater		In 2022, all industrial waste water will not be discharged.

<sup>10</sup>

This target is from the *Notice on Improving the Tiered Electricity Price Policy of Electrolytic Aluminum Industry* issued by NDRC



## Promoting scientific and technological innovation to pursue green development (continued)

Indicator		Base year	Target description
Air emission	Amount of SO <sub>2</sub> emission	2020	The amount of SO <sub>2</sub> emission will fall by 2% in 2022, 3% in 2023 and 5% in 2025, respectively.
	Amount of NO <sub>x</sub> emission	2020	The amount of NO <sub>x</sub> emission will fall by 2% in 2022, 3% in 2023 and 5% in 2025, respectively.
	Amount of PM emission	2020	The amount of PM emission will fall by 2% in 2022, 3% in 2023 and 5% in 2025, respectively.
Hazardous waste	The disposal of hazardous waste follows the principle of “disposing of 100% of the hazardous waste generated in the current year”, and all hazardous wastes generated from previous years shall be handled accordingly in the next five years.		
Non-hazardous waste	Advancing the research and development for the red mud comprehensive utilization projects and improving the comprehensive utilization rate of red mud.		
Mining area reclamation	The reclamation rate of mining areas will achieve 100%, and the reclamation amount will reach to 6,200 hectares in 2022.		

### 7.1 Protection of natural ecology

#### 7.1.1 Environmental management system

In 2021, Chalco formulated the *Mandatory Requirements for Ecological Environment Management and Control of Aluminum Corporation of China Limited*, revised the *Working Rules of the Occupational Health, Safety and Environment Committee*, the *Occupational Health, Safety, and Environmental Responsibility System at Headquarters*, and the *Working Rules of Occupational Health, Safety and Environment Supervision*. We are committed to building a long-term system for green environmental protection throughout the value chain.

The Company has established a comprehensive environmental management system and clarified the responsibilities of management and business departments at all levels for environmental management.



The Company implements the occupational health, safety, and environmental protection precision management system (CAHSE system), conducts the CAHSE precision management system audit for its production subsidiaries once a year, and requires its subsidiaries to formulate rectification plans according to the audit results, to strengthen their abilities to control environmental protection. The Company also incorporates the enterprise environmental protection system audit score into the annual performance assessment to further improve the management level of environmental protection. In 2021, the Company organized all subsidiaries to conduct an audit on the environmental protection precision management system, achieving an audit pass rate up to 100%.

The Group continuously strengthens the ability to the supervision and management of the ecological environment. The Company and its subsidiaries have set up a central leading group for rectification of ecological and environmental protection supervision issues. The leading group is responsible for carrying out special investigations on key environmental issues and implementing the working mechanism of weekly supervision of key nodes. This year, the Company compiled a case collection of typical illegal issues related to ecological environment happened from 2017 until this year, and organized relevant enterprises to carry out environmental protection training to enhance the awareness of environmental protection.

In 2021, the completion rate of the rectification measures for central ecological and environmental protection supervision reached 84.4%, higher than the rectification target.

### 7.1.2 Prevention and control of pollution

In strict accordance with relevant national laws and regulations and local policies, Chalco continuously improves internal pollutant discharge management system and engage ourselves in the battle of pollution prevention and control to ensure the stable discharge of pollutants in compliance with relevant standards. The Company formulated the *Environmental Protection Management System List for Production Enterprises of Aluminum Corporation of China Limited*, the *Mandatory Requirements for Ecological Environment Management and Control of Aluminum Corporation of China Limited*, and environmental assessment plans. We also guided relevant enterprises to improve the ecological environment protection system, unified various environmental protection management standards of relevant enterprises, and incorporated the completion of inspection and rectification tasks conducted by relevant departments into the performance assessment system of the Company. The Company also accessed 226 industrial waste gases and water discharge points from 21 subsidiaries into "lean management system under the Center of Excellence", which improved the environmental protection digitalized monitoring ability.

#### 7.1.2.1 Wastewater treatment

The Company has established an industrial wastewater recycling system, and its affiliated production enterprises have realized "zero discharge" of industrial wastewater. 100% of the industrial wastewater can be reused for production after treatment.

#### The project of mining drainage treatment transformation from Guizhou Branch

Case

In 2021, the Company completed the drainage treatment transformation of Maiba Longtoushan Mine in Guizhou Branch, and the treatment capacity increased from 1,000 m<sup>3</sup>/h to 3,000 m<sup>3</sup>/h.



## Promoting scientific and technological innovation to pursue green development (continued)

### 7.1.2.2 Prevention and control of air pollution

In accordance with the measures of environmental protection of the Company and other internal rules and regulations, the Group continuously strengthens the treatment of air pollutants, advances new technological transformation, and promotes clean production. The air pollutants generated in the operation of the Group mainly include sulfur dioxide, nitrogen oxides, and smoke.

#### Case

##### Guangxi Huasheng built the largest bonded warehouse in the Asia for bauxite storage



Furthermore, in 2021, the completely-enclosed renovation project of the mine of Chalco Shandong was under construction, and the particulate matter emission of relevant enterprises in Shandong was reduced by 10.28 tons in total during the year.

#### Case

##### Zhongzhou Aluminum equipped intelligent sprinkler system for ore yard

Zhongzhou Aluminum equipped intelligent sprinkler system to reduce dusts and particular matters for ore yard. The system is connected with the PM2.5 and PM10 monitoring system. When the level of concentration of dusts exceeded the standard level, the sprinkler system will be turned on automatically. This system solves the problem of air pollution creations due to dust spreading from works in the ore yard.



### 7.1.2.3 Treatment of solid waste

The Group gives high priority to the compliance treatment of waste and disposes of various wastes in strict accordance with relevant laws and regulations. This year, the Company focused on improving the long-term mechanism of waste disposal, established the *Measures for the Management of Hazardous Waste of Aluminum Corporation of China Limited*, clarified the management responsibilities of the headquarters departments and entity enterprises, and standardized the hazardous waste management of the Company.

Disposal measures of main wastes

Waste category	Waste type	Disposal measure
Hazardous waste	Overhaul slag, aluminum ash, carbon slag	Establishing temporary storage warehouse of hazardous wastes for safe storage, and entrusting a qualified third party for disposal.
General solid waste	Fly ash, sulfur paste	All wastes comprehensive utilization
	Red mud	Due to the difficulty of utilization, most of the red mud is stored in the red mud storage yard constructed per relevant standards, and a small portion of the red mud is used for comprehensive utilization.



Chalco Shandong has carried out a pilot project in the technology application of red mud comprehensive utilization

The Company is constantly improving the recycling of waste and engages in the research and development of waste reduction technologies including comprehensive utilization of red mud and utilization technology of secondary aluminum ash resources. In 2021, the comprehensive utilization of red mud resources of the Company was officially included in the major project of the Central Research Institute of Chalco, and the key technology research project of large-scale utilization of 200,000-ton high-iron content red mud was completed. A demonstration line for the collaborative disposal of secondary aluminum ash from clinker kilns was put into operation. The Company then formulated the action plan for the development of recycled aluminum and improved the recycling ratio of waste aluminum by establishing the waste aluminum recovery system and technical standards for the control process.

### Recycling of gray aluminum ash

#### Case

Zhengzhou Research Institute developed key technologies and equipment for the full utilization of secondary aluminum ash resources. With the world-leading process and technology, it promoted the technological progress of relevant industries in China.





## Promoting scientific and technological innovation to pursue green development (continued)

### 7.1.3 Efficient resource utilization

#### 7.1.3.1 Water efficiency

The Group strives to reduce the use of water resources in the process of operation, and improves the efficiency of water resources utilization by optimizing the water use structure, strengthening daily water-saving management, and promoting the application of water recycling technology. The main water sources of the Company are the Yellow River, the Yangtze River, and their tributaries, and we have not yet faced a shortage of water resources.

The main measures adopted by the Company in 2021 are as follows:

Water resource conservation	Specific measures
Optimizing the management process	<ul style="list-style-type: none"> <li>Establishing water consumption ledger for teams and issuing daily water consumption indicators and product unit consumption indicators for each work area;</li> <li>Including the water indicators of various products in daily assessment and fulfilling them in the performance at the end of the month;</li> <li>Insisting on the classification and measurement of various types of water and conducting investigations on the use of freshwater, reverse osmosis water, and condensate water in each work area.</li> </ul>
Increasing the consumption of circulating water	<ul style="list-style-type: none"> <li>Using circulating water instead of new water for spraying water in the mine;</li> <li>Recycling cooling water of the raw material mill in the cooling water tower.</li> </ul>

#### Case

### Rainwater recycling system of Chalco Trading Group



### 7.1.3.2 Energy use

With the local implementation of “dual control” policies of energy consumption are put into implementation, Chalco has formulated energy management systems, such as the *Measures for the Management of Production and Operation of Aluminum Corporation of China Limited* and the *Measures for the Management of Energy Saving of Aluminum Corporation of China Limited*, to improve energy efficiency, increase the application of energy-saving measures, and advance the transition to clean energy within the system. At the beginning of each year, the Company issues energy consumption indicators to its production enterprises. At the end of the year, the Company evaluates the completion of indicators and links the completion of indicators with the performance assessment of the management. Relevant departments are responsible for tracking production operations, conducting statistical analysis of daily production data, and requiring relevant enterprises to take effective measures to ensure the stability of energy consumption indicators. The Company also requires relevant enterprises to submit special analysis reports on key issues, and issue a deadline for rectification.

#### Strengthening energy control

##### Case

#### Strengthening process control and reducing power consumption

In 2021, Shanxi Zhongrun strictly implemented the “five standards and one control”<sup>11</sup> and conducted standardized management of the production process and production indicators, thus stabilizing the operation of electrolytic cells and reducing electricity consumption of aluminum molten synthesis AC power consumption by 78 kWh YoY.

##### Case

#### Innovating the whole-process control mode to reduce the energy consumption of carbon anode roasting

In 2021, the carbon plant of Guangxi Branch improved the process control mode and strictly controlled the key points of the whole-process anode roasting, thus increasing the capacity utilization rate of the roasting furnace and successfully reducing the natural gas consumption per roasted block. Thanks to the project, the consumption of standard coal can be reduced by 7,800 tons annually.



#### Adjusting energy structure

In recent years, Chalco has been committed to developing renewable energy industries such as photovoltaic power generation and wind power generation. The Company closely follows national and local policies supporting the adjustment of energy use structure and focuses on the policies related to the “dual control” of energy consumption, comprehensive energy demonstration and renewable energy development. The Company also formulated the New Energy Industry Development Plan based on its actual condition.

In 2021, the Company issued the *Notice on Accelerating the Acquisition of Wind Power and Solar Power Resources*, the *Notice on the Unified Research and Deployment of Distributed New Energy Power Generation Projects* and other guidance documents to guide relevant enterprises to accelerate the adjustment and transformation of energy structure. As of the end of 2021, the Group's installed capacity of wind power generation and solar power generation reached 1,606 MW and 213 MW, respectively. Chalco continuously increases the use of clean energy and actively carries out the replacement of new energy. This year, the proportion of clean energy used by all subsidiaries and branches

<sup>11</sup> The “five standards and one control” refers to bulk raw fuel standard, roasting start-up standard, post-start-up management standard, normal production technology standard, production operation standard and data-based control production, which is a scientific, systematic, standardized and refined electrolytic production management mode.

## Promoting scientific and technological innovation to pursue green development (continued)

significantly increased, where Qinghai Branch, Lanzhou Branch and Liancheng Branch used 5.2 billion, 3.2 billion and 1.4 billion green electricity cumulatively which takes 92%, 57% and 66% of total electricity consumption respectively.

(Please refer to Chapter 7.2 "Tackling climate change" for more efforts towards energy saving and carbon emission reduction)

### 7.1.3.3 Packaging reduction

Chalco strives to reduce the production and use of packaging in the operation process and explores the use of recyclable packaging. The Company vigorously promotes the optimization of alumina packaging, taking into account factors such as loading and unloading conditions, transportation methods, and transportation distance. The Company also focuses on the promotion of recyclable bags, automobile bulk, new dry bulk containers, and other packaging optimization methods on eligible routes. An internal sharing mechanism for the benefits of packaging optimization has been established, encouraging production enterprises and logistics enterprises to promote packaging optimization. In 2021, the recycling bags adopted by the Company for cumulative use weighed 65 tons in total.



### 7.1.4 Ecological restoration

Chalco adheres to the concept of "responsible mining" and is committed to building "green mines". The Group strictly abides by relevant laws and regulations such as the *Mineral Resources Law of the People's Republic of China* and the *Land and Resources Protection Law of the People's Republic of China*. The Group is also engaged in scientific mining, responsible site selection, and mine reclamation to mitigate the impact of operation activities on mine resources and residents in surrounding areas.

### Geological environment governance project of Meiyaogou open-pit mining

#### Case

In 2021, the geological environment governance project of Meiyaogou open-pit mining of Sanmenxia Branch of Chinalco Zhongzhou Mining Co., Ltd. was implemented per the restoration and treatment design. The excavation for cutting slope and unloading in the treatment area reached 64,625 cubic meters, with a filling area of 27,006 cubic meters. The leveling excavation area was 216,521 cubic meters, with a filling area of 717,230 cubic meters. The grass seeds sowing area was 87,011 square meters, with 1,909 platycladus Orientalis planted, covering a total area of 184,067 square meters. Since the project was implemented, 8.94 hectares of farmland, 0.76 hectare of forest land, and 8.70 hectares of grassland have been restored, further promoting the development of local agriculture and generating income for locals.



### 7.1.5 Promoting green operation

Chalco adheres to the concept of a low-carbon green office and engages in the construction of green and low-carbon culture. The Company advocates concepts such as “energy conservation, carbon emission reduction, and green development” and “low-carbon life for a green future” to its employees through electronic screens, WeChat platforms, posters, and slogans. We encourage employees to participate in daily low-carbon actions such as turning off lights and water taps after leaving the office, green travel, and reducing food waste.

#### Case

#### Shanxi Huaxing, Shanxi Zhongrun reduces commuter bus fees and advocates green travel

Shanxi Huaxing and Shanxi Zhongrun took measures to encourage employees to take commuter buses and reduced the traffic cost from the living community to the factory area from RMB5 to RMB2, which enhanced the awareness of low carbon and energy-saving among its employees, and also deeply impressed them with the healthy concept of green travel, low carbon, and environmental protection.

### 7.1.6 Enhancing environmental awareness

Chalco engages all departments and entity enterprises in studying laws and regulations on environmental protection, and organizes special training on environmental protection, targeting challenging points in hazardous waste management and online monitoring management. Focusing on the theme of “harmonious coexistence between man and nature”, the Company also publicizes World Environment Day, which falls on June 5, to strengthen the environmental awareness of management at all levels and comprehensively improve their ability to manage and control environmental risks.

#### Case

#### Activities on the World Environment Day on June 5th



Distribution of environmental protection leaflets



Visiting new environmental materials



## Promoting scientific and technological innovation to pursue green development (continued)

### 7.2 Tackling climate change

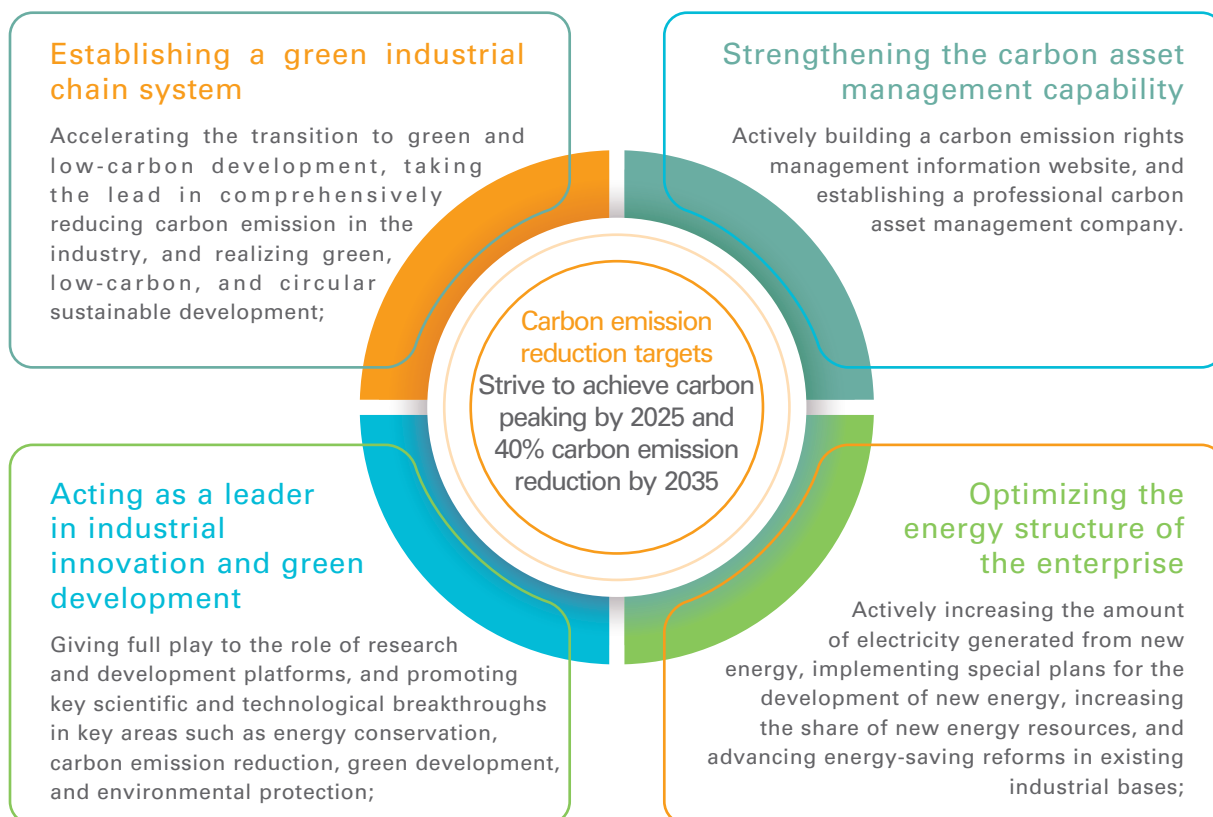
In answer to the national call, of “30.60”, Chalco actively promotes the implementation of green and low-carbon strategies comprehensively, accelerates the carbon emission reduction of major products, develops the new energy industry, carries out the projects for energy conservation and emission reduction, and actively follow climate change policies both at home and abroad. In this way, we turn challenges into opportunities and embrace new development milestones.

#### 7.2.1 Carbon emission reduction management

The Board of Directors of Chalco attaches great importance to the climate change-related work and has set up a leading group for “carbon peak and carbon neutrality”. An office under the leading group is responsible for handling the daily work related to “carbon peak and carbon neutrality”. Each functional department of the Company assumes its assigned responsibilities related to “carbon peak and carbon neutrality”.

Strive to achieve carbon peaking by 2025 and 40% carbon emission reduction by 2035

In 2021, focusing on the concept of green and low-carbon development, the Company formulated the development plan during the 14th Five-Year Plan period as well as new energy development special plans, which highlight the mindset of green development in the next five years and initiate the long-term strategy. To meet the objectives of planning and implement of carbon management system, Chalco made various strategic plans, such as the action plan for carbon peak and carbon neutrality. The Company also planned to take measures, such as strengthening management, promoting technological transformation, and advancing operation optimization, to reduce the indicators, including the AC power consumption of electrolytic aluminum, the comprehensive energy consumption of alumina, and coal consumption for electricity supply in the power plant. The following measures were adopted to achieve the goal.



All subsidiaries of the Group have gradually advanced “dual carbon” actions. The typical examples are as follows.

- Qinghai Branch established the first “green and low-carbon technology R&D center” within the system to promote the work related to “carbon peak and carbon neutrality”;
- Baotou Aluminum responded to the national “dual carbon” action call through such means as promoting the application of new energy, formulating a timetable and roadmap, and building demonstration bases for the utilization of new energy and the reduction of electrolytic aluminum power consumption;
- All units of Shanxi Huaxing took various measures to advance “dual carbon” actions, has taken actions on adjusting the operation mode of thermal power equipment, optimizing economic and technical indicators, reducing the cost of organization and management, as well as promoting energy-saving and consumption reduction.

## 7.2.2 Identifying impacts

To actively respond to the impacts posed by climate change, the Company identifies the main climate-related impacts and countermeasures based on its operation status.

### Transition impacts:

Sources of impacts	Impact description	Response measure
Policy and Law	<ul style="list-style-type: none"> <li>The government and regulatory authorities in China and other places where the Company operates may implement more stringent environmental laws, regulations, and policies in the future, which may increase the compliance cost of the Company;</li> <li>The carbon trading markets at home and abroad are gradually improved, which will increase the cost of carbon compliance.</li> </ul>	<ul style="list-style-type: none"> <li>Follow closely the changes of relevant policies and regulations at home and abroad and make timely adjustments</li> </ul>
Technology	<ul style="list-style-type: none"> <li>It is a great challenge to promote energy-saving and consumption reduction amid low-carbon transformation, the overall energy efficiency needs to be improved, and technological transformation increases the cost of the Company.</li> </ul>	<ul style="list-style-type: none"> <li>Stepping up efforts to improve green and clean production capacity featuring green mining, low-carbon smelting, and zero-carbon emissions</li> </ul>
Market	<ul style="list-style-type: none"> <li>The market will pay more attention to the energy consumption per unit on the supply side, thus reducing the demand for the carbon-intensive products of the Company.</li> </ul>	<ul style="list-style-type: none"> <li>Developing green products such as low-carbon aluminum, zero-carbon aluminum, recycled aluminum, and high-end high-purity functional new materials</li> </ul>
Reputation	<ul style="list-style-type: none"> <li>Stakeholders pay more attention to the performance of the Company in green and low-carbon development and response to climate change. It may affect the reputation and image of the Company if it fails to meet the expectations in this regard.</li> </ul>	<ul style="list-style-type: none"> <li>Accelerating the low-carbon transformation of the Company;</li> <li>Improve the disclosure and transparency of climate change management information</li> </ul>

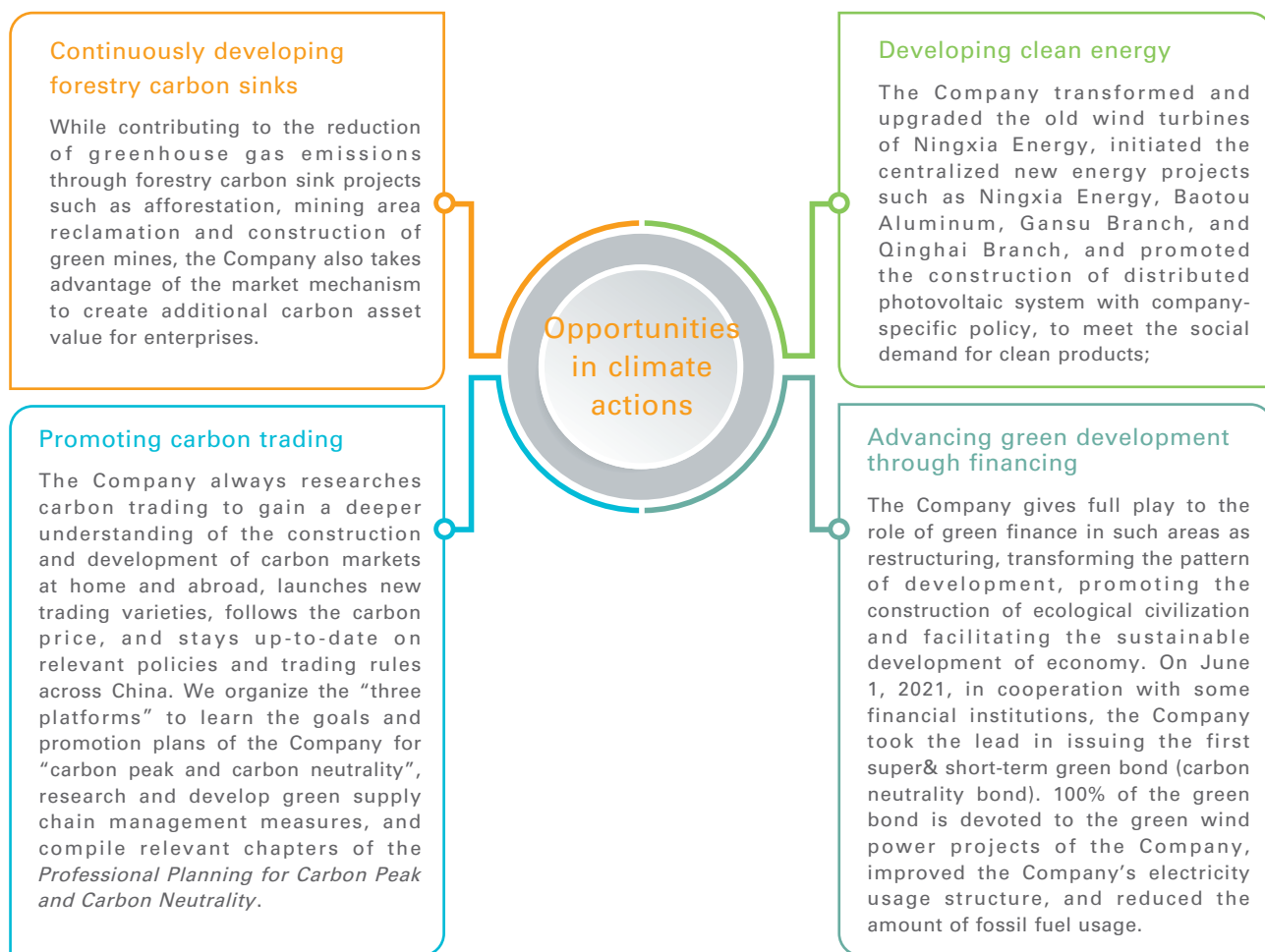
### Physical Impact

Sources of impacts	Impact description	Response measures
Acute	The increasing frequency of natural disasters such as hurricanes and floods may lead to a cutoff of water supplies, power outages, and destruction of production facilities, thus suspending production and operation.	<ul style="list-style-type: none"> <li>Establishing early warning systems and emergency plans;</li> <li>Improving the resistance of equipment to the impacts from natural disasters</li> </ul>
Chronic	Corporate operating cost increases, such as growing demand for cooling water equipment, and increasing demand for energy use in operating areas.	

## Promoting scientific and technological innovation to pursue green development (continued)

### 7.2.3 Seizing opportunities

Tackling climate change will effectively avoid risks and also offer more opportunities to enterprises. Chalco transforms challenges into opportunities, continuously speeds up the construction of green industrial ecology, and creates a new pattern of high-quality development.



### 7.3 R&D of low-carbon technology

Chalco unswervingly explores new paths for energy saving and carbon emission reduction technologies increases the investment in R&D and promotion of energy-saving and carbon emission reduction technologies, as well as strengthening internal and external cooperation and exchanges. We are committed to promoting the progress of carbon emission reduction technologies in the industry.

In 2021, focusing on the goals of “carbon peak and carbon neutrality”, the “dual control” of energy consumption and a series of industrial policies and measures, the Company was on track to comprehensively optimize the layout of core sectors, adjust regional energy structure, and actively research the layout plans such as alumina and electrolytic aluminum, which clearly identifies the green and low-carbon development as the key direction of scientific and technological research. With the momentum to deepen reform, advance innovation-driven development, and pursue green and low-carbon development, the Company also prepared special work plans for green technology to greatly improve the green level of aluminum smelting.



### 7.3.1 Alumina carbon emission reduction technology

The Company takes full advantage of scientific and technological talents and testing platforms to detect and analyze the energy consumption during the production of alumina. We also put forward energy-saving measures, apply energy-saving technology and equipment across the fields, and improve the alumina production process.

#### New digital technology empowers the alumina carbon emission reduction

Case

During the production process of alumina, some problems affect the production efficiency of alumina and lead to the low efficiency and high energy consumption of the evaporator, such as the insufficient evaporation volume of the evaporator for production, the unqualified steam-water ratio, and the low concentration of salt removed by evaporation. Therefore, the Company developed the thermal optimization and energy-saving technology of falling film evaporators and established a more optimized thermal system to improve the efficiency of the evaporator. It achieves energy-saving and consumption reduction of evaporators reduces the energy consumption and carbon emissions in the process of alumina production.

### 7.3.2 Electrolytic aluminum carbon emission reduction technology

Zhengzhou Research Institute has had ground breakthrough in the field of electrolytic aluminum related technology development by gathering scientific talents and focusing on scientific research that deeply responses the action of "demonstration of scientific development reforming". During the "14<sup>th</sup> Five-Year Plan", the company will keep undertaking experiment, creating and promoting sets of low-carbon electrolytic aluminum technology that will be applied in industry.

#### Conducting energy efficiency tests of electrolyzer and electrolyzer renovation, developing energy saving and carbon emission reduction potent of electrolyzer

Case

In 2021, Chalco organized the Zhengzhou Research Institute to test the energy efficiency tests of electrolyzer from subsidiaries that create electrolytic aluminum. The test included 120 sets of electrolyzer from 15 series and more than 100 improvement measures were raised up, which reduced general energy consumption by different scales.

### 7.3.3 Carbon and anode carbon emission reduction technology

Zhengzhou Research Institute insists on contributing to carbon emission reduction through science and technology and helps relevant enterprises to effectively reduce carbon emission through the R&D and application of low-carbon carbon anode technology.

Case

#### Carbon slag-free anode technology helps to reduce carbon emissions from electrolytic aluminum

Focusing on the factors that affect the power consumption in the process of aluminum electrolysis, Zhengzhou Research Institute developed the carbon slag-free anode technology to improve the quality of carbon anode, lower the equivalent voltage, and achieve energy saving and consumption reduction. For electrolytic aluminum enterprises with an annual capacity of 1 million tons, the application of carbon anodes produced by carbon slag-free anode technology will reduce carbon dioxide emissions by about 42,000 tons.

Case

#### Green and low-carbon carbon anode production technology aids for carbon emission reduction

Given the large surplus of residual electrodes in some electrolytic aluminum enterprises, Zhengzhou Research Institute researched and developed a low-cost, high-quality carbon anode production technology with efficient utilization of residual electrodes, thus reducing the net carbon consumption and carbon emission during electrolytic production. The technology was promoted and applied in two carbon enterprises in Xinjiang and Guangxi, achieving a carbon emission reduction of 45 kg per ton of carbon anode production and reducing carbon emission by 41,500 tons of CO<sub>2</sub> equivalent in total.



## Promoting scientific and technological innovation to pursue green development (continued)

### 7.4 Key environmental performance

The environment-related performance data of the Group from 2019 to 2021 are shown in the table below.

Performance indicator	Unit	2019	2020	2021
Basic information				
Operating income <sup>12</sup>	RMB10,000	19,021,539.80	18,599,057.70	26,974,823.18
Alumina production	10,000t	1,380	1,453	1,623
Electrolytic aluminum production	10,000t	379	369	386
Emissions				
Air emissions				
The amount of SO <sub>2</sub> emission	10,000t	4.73	3.60	3.46
The amount of NO <sub>x</sub> emission	10,000t	1.33	1.05	0.96
The amount of PM emission	10,000t	0.57	0.42	0.32
GHG emissions <sup>13</sup>				
Scope 1				
CO <sub>2</sub> equivalent emission of alumina sector	10,000t	2,504.07	2,412.86	2,245.60
CO <sub>2</sub> equivalent emission of electrolytic aluminum sector	10,000t	2,535.23	2,120.03	2,240.68
The amount of total CO <sub>2</sub> emission (in CO <sub>2</sub> equivalent) <sup>14</sup>	10,000t	6,699.68	6,101.23	5,720.66

<sup>12</sup> Noted: According to the Company's 2021 Annual Report, some of the financial data including operating income for year 2020 have been restated, and the operating income for year 2020 cited in this report and relevant environmental performance indicators have been restated accordingly.

<sup>13</sup> The emission data disclosed in the Company's 2021 annual report and ESG report are calculated by using the average emission factor of each energy consumption data after the Group has aggregated the energy consumption data of each branch and subsidiary.

<sup>14</sup> Including emissions from the alumina sector, electrolytic aluminum sector and other business sectors.

Performance indicator	Unit	2019	2020	2021
Scope 2				
CO <sub>2</sub> equivalent emission of alumina sector	10,000t	159.67	197.96	277.37
CO <sub>2</sub> equivalent emission of electrolytic aluminum sector	10,000t	2,505.48	2,570.20	2,650.37
The amount of total CO <sub>2</sub> emission (in CO <sub>2</sub> equivalent) <sup>15</sup>	10,000t	2,695.52	2,802.77	2,959.45
Total greenhouse gas emissions				
CO <sub>2</sub> equivalent emission of alumina sector	10,000t	2,663.76	2,610.79	2,522.97
CO <sub>2</sub> equivalent emission per ton in alumina sector	t/ton of alumina production	1.93	1.80	1.55
CO <sub>2</sub> equivalent emission of electrolytic aluminum sector	10,000t	5,040.71	4,690.23	4,891.05
CO <sub>2</sub> equivalent emission per ton in electrolytic aluminum sector	electrolytic aluminum production	13.30	12.71	12.67
The amount of total CO <sub>2</sub> emission (in CO <sub>2</sub> equivalent) <sup>16</sup>	10,000t	9,395.20	8,904.00	8,680.11
The amount of total CO <sub>2</sub> emission (in CO <sub>2</sub> equivalent) per RMB10,000 of operating income	t/RMB 10,000	4.94	4.79	3.22
Wastewater discharge				
The amount of industrial wastewater discharged in compliance with relevant standards	10,000t	192.02	76.23	31.44
The amount of ammonia nitrogen discharged	t	7	5.6	1.54

<sup>15</sup> Including emissions from the alumina sector, electrolytic aluminum sector and other business sectors.

<sup>16</sup> Including emissions from the alumina sector, electrolytic aluminum sector and other business sectors.

## Promoting scientific and technological innovation to pursue green development (continued)

Performance indicator	Unit	2019	2020	2021
General industrial solid wastes				
The amount of general industrial solid wastes generated	10,000t	3,945.30	3,780.33	4,147.66
The amount of general industrial solid wastes generated per RMB10,000 of operating income	t/RMB 10,000	2.07	2.03	1.54
The amount of red mud generated	10,000t	2,181.04	2,172.46	2,426.50
The amount of red mud utilized	10,000t	449.18	280.58	328.32
The amount of fly ash generated	10,000t	505.92	436.23	425.15
The amount of fly ash utilized	10,000t	358.63	324.61	349.96
The amount of slag generated	10,000t	170.99	130.94	135.74
The amount of slag utilized	10,000t	143.94	105.27	118.27
Hazardous wastes				
Total amount of hazardous waste <sup>17</sup>	t	86,911	112,540	149,505
The amount of hazardous waste generated per RMB10,000 of operating income	t/RMB 10,000	0.0046	0.0061	0.0055
The amount of waste oil (motor oil and mineral oil) generated	t	1,667	733	721
The amount of disposal of waste oil (motor oil and mineral oil)	t	1,667	819	629
The amount of aluminum ash generated	t	19,007	22,402	33,047
The amount of aluminum ash disposal	t	11,562	29,181	27,035
The amount of waste tank lining generated <sup>18</sup>	t	20,837	39,958	46,157
The amount of disposal of waste tank lining	t	10,108	37,884	99,855
The amount of carbon slag generated	t	45,400	49,447	59,408
The amount of carbon slag disposal	t	26,756	47,493	68,354

<sup>17</sup> The major reasons for increasing amount of hazardous wastes generated from this year, including aluminum ash, waste tank, carbon slag etc. are:

1. the increasing amount of alumina production and electrolytic aluminum production,
2. the hazardous wastes generated from production process increasing due to power restriction and from the maintenance to some electrobaths.

<sup>18</sup> The *National List of Hazardous Wastes (2021)*, 321-023-48: Waste residue from maintenance and replacement of cathode lining of electrolytic cell during production of electrolytic aluminum

Performance indicator	Unit	2019	2020	2021
Use of resource <sup>19</sup>				
Comprehensive energy consumption	tce	1,956.27	2,058.04	2,540.74
Comprehensive energy consumption per RMB10,000 of operating income	tce/ RMB10,000	1.03	1.11	0.94
The amount of purchased electricity	100 million kWh	389.26	400.39	409.23
Total coal consumption	10,00t	1,368.33	1,551.96	1,543.15
Total water consumption	100 million t	30.01	34.14	32.37
In which: circulating water consumption	100 million t	28.98	33.29	31.36
Total freshwater consumption	100 million t	1.03	0.84	1.02
Water consumption per RMB10,000 of operating income	t/RMB 10,000	157.77	183.55	120.00
Freshwater consumption per RMB10,000 of operating income	t/RMB 10,000	5.41	4.52	3.78
The amount of packaging material used	10,00t	1.37	1.33	1.49
The amount of packaging material used per RMB10,000 of operating income	10,00t/ RMB10,000	0.00072	0.00072	0.00055

19

This year, the Company improved the range of water consumption statistics, which included the data from Ningxia Energy. The Company restated the data of total water consumption, circulating water consumption and total freshwater consumption in 2020.



## Promoting scientific and technological innovation to pursue green development (continued)

### Discharge indicators in 2021

#### Number of discharge outlets

Waste gas	number	1,150
Wastewater	number	20

Emission type	Unit	Total emissions	Approved total emissions (under emissions permit)
SO <sub>2</sub>	t	39,649	83,327
NO <sub>x</sub>	t	10,582	25,694
PM	t	3,369	14,629
COD	t	64	122
Ammonia nitrogen	t	1.54	11

### Environmental penalties in 2021

Five environmental administrative penalties were imposed on the subsidiaries of Chalco in 2021, among which the fines of four totaling 464,300 yuan have been paid, while the notice of administrative punishment decision of the last one was just received in January 2022. The rectifications of all incidents involved are either completed or undergoing. The major incidents are as follows:

1. In April 2021, Ningxia Energy was fined 364,300 yuan as one of its subsidies had carried out a construction project without any EIA approval. The project has been approved in November 2021.
2. Huaxing Technology was punished administratively in October 2021 due to the poor sealing of the raw material warehouse, the failure to build an enclosed raw material warehouse, the failure to accurately record storage volume of hazardous wastes in the hazardous waste ledger, and the failure to set up identification marks for hazardous wastes. It paid off the fine of 1.06 million yuan to the Lvliang Municipal Bureau of Ecology and Environment on 4, January 2022. It is now conducting an administrative review of this penalty and proactively improving the situation.

# 8

## Putting people first to create a joyful workplace

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## Putting people first to create a joyful workplace



Chalco believes that “talent is the primary resource” and puts people first. Through a standardized employment system, smooth communication channels, and sound development mechanism, Chalco safeguards employees’ rights and interests, strengthens humanistic care for employees, and works together with employees to create a workplace that encourages mutual development of employees and the enterprise.

Chalco strictly complies with the *Labour Law of the People’s Republic of China*, the *Labour Contract Law of the People’s Republic of China*, the *Law of the People’s Republic of China on the Protection of Minors*, the *Prohibition on the Use of Child Labor*, the *Labor Dispute Mediation and Arbitration Law of the People’s Republic of China*, the *Law of the People’s Republic of China on the Protection of Women’s Rights and Interests*, the *Law of the People’s Republic of China on the Protection of Disabled Persons* and other relevant laws and regulations on employment. In compliance with the above laws and regulations, we have established a sound employment system and norms.

### 8.1 Protecting employees’ rights and interests

The Company has developed the *Measures for Labor Contract Management of Aluminum Corporation of China Limited*, the *Measures for the Performance Management of Branches and Subsidiaries of Aluminum Corporation of China Limited*, the *Interim Regulations on the Management of Overtime Work and Overtime Pay for Employees at Headquarters of Aluminum Corporation of China Limited*, to protect legitimate rights and interests of employees. The Company handles the employee induction procedures per the corporate systems and processes, strictly prohibits illegal employment, child labor, and forced labor, and ensures that all employees meet the age requirements of local laws and regulations. If any of the above malpractice is found, we will strictly deal with it by laws, regulations and relevant requirements. During the reporting period, the Group did not use any child labor or forced labor.

#### 8.1.1 Equal employment

Chalco is committed to creating an equal, diverse and healthy workplace. The Group adheres strictly to the laws and regulations, sticks to the principle of equal employment, follows the employment policies of equal pay for equal work, gender equality, and ethnic equality, ensures that all employees enjoy legitimate rights and interests and fair and just treatment per laws and regulations, and guarantees that the values, religious beliefs and privacy of employees of different nationalities, races, genders, and cultural backgrounds are respected. The Group is also committed to workforce diversity to create inclusive teams of people from different races, educational backgrounds, work experience, nationalities, and expertise.

#### Case

#### Zunyi Aluminum – Adopting Multiple Initiatives to Protect the Rights and Interests of Employees and Building Harmonious Labor Relations in the Enterprise.

In 2021, to further consolidate the achievements of creating an enterprise with harmonious labor relations, Zunyi Aluminum actively communicated with local disabled persons’ federations and social security bureaus to ensure that the disabled employees could work at their production posts smoothly and properly solved problems to achieve job optimization and job stability. Zunyi Aluminum created job opportunities for some disabled people by applying for a job stabilization subsidy of more than RMB600,000.



### 8.1.2 Personnel management

Chalco continues to improve the labor-management system and human resources management structure. Per the relevant laws and regulations of the People's Republic of China on employment, Chalco strictly regulates the recruitment and dismissal process and the working hours of employees and has formulated and issued the *Guidance on the Management of Three Types of Personnel to Promote the Reform and Optimization of the Labor System*, the *Guidance on the Benchmarking of Labor and Employment in Entity Enterprises* and the *Implementation Opinions on Optimizing the Management of Long-term Outsourcing Personnel* and other management measures. It also puts forward specific objectives and action measures to optimize the labor-management system from the aspects of employment mechanism, organization, labor dispatch, and workforce structure and ratio.

The Company also continues to optimize the human resources management structure. The Company's Human Resources Department is responsible for the overall planning of staffing, performance assessment, labor costs, personnel training management and guides the Company's subsidiaries to set up a talent management framework and implement human resources-related work. Every year, the Company publicizes human resources policies by holding regular meetings, organizing training, and circulating documents. The Company organizes subsidiaries to hold human resources work seminars and training meetings to encourage colleagues in the human resources departments of branches and subsidiaries to exchange and learn relevant policies and work experience of human resources of the country, the parent department, and company.

In 2021, the Company implemented the Three-year Action Plan for Deepening Reform (2020-2022), standardized the tenure system and contractual management of the Company's leading group members and leaders of branches and subsidiaries. We accelerated the improvement of the modern enterprise system, improved the market-oriented selection and employment mechanism and the market-oriented salary incentive mechanism, standardized the term management of leading group members, and optimized the target assessment. The leaders of the Company and its branches and subsidiaries at different levels are expected to sign the *Management Agreement (Letter of Responsibility)* and the assessment indexes and the weight system of the assessment subject are scientifically designed. The well-defined targets, power, and responsibility of leaders and strengthened role of target-oriented and performance-led concepts serve as strong human capital support for accelerating the construction of the Company into a world-class aluminum company.

Total number of current employees as of the end of the reporting period (Person)		2021
		<b>60,056</b>
The number of employees by gender (Person)	Male	<b>49,952</b>
	Female	<b>10,104</b>
The number of employees by age group (Person)	30 and below	<b>6,051</b>
	30-49	<b>37,735</b>
	50 and above	<b>16,270</b>
The number of employees by employment category (Person)	Senior management	<b>157</b>
	Department heads	<b>875</b>
	Other office employees	<b>8,812</b>
	General and technical workers	<b>50,212</b>
The number of employees by region (Person)	Hong Kong, Macao and Taiwan regions	<b>0</b>
	Chinese mainland	<b>60,056</b>



## Putting people first to create a joyful workplace (continued)

Table: Chalco's Employment in 2021<sup>20</sup>

Category		Number of People	Rate <sup>21</sup>
The total number of turnover as of the end of the reporting period		<b>4,073</b>	<b>6.8%</b>
Number and rate of employee turnover by gender	Male	3,206	<b>6.4%</b>
	Female	867	<b>8.6%</b>
Number and rate of employee turnover by age group	30 years old and below	292	<b>4.8%</b>
	30-49 years old	1,061	<b>2.8%</b>
	50 years old and above	2,720	<b>16.7%</b>
Number and rate of employee turnover by rank	Senior management	0	<b>0%</b>
	Department heads	0	<b>0%</b>
	Other office employees	398	<b>4.5%</b>
	General and technical workers	3,675	<b>7.3%</b>
Number and rate of employee turnover by region	Hong Kong, Macao and Taiwan regions	0	<b>0%</b>
	Chinese mainland	4,073	<b>6.8%</b>



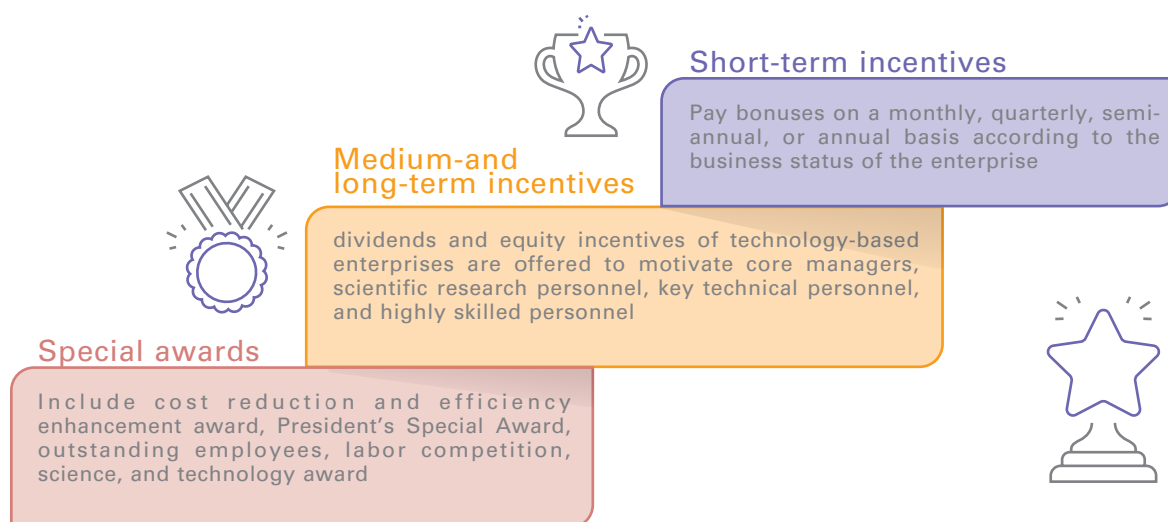
<sup>20</sup> The range of people from the Group that take into account for calculation turnover rate include voluntary departures, dismissals, retirements and deceased employees.

<sup>21</sup> Turnover rate (per category)=Employees in the specified category leaving employment/Number of employees in the specified category

### 8.1.3 Remuneration management

Chalco cherishes the value of talents and has adopted the *Pilot Measures for Wage Management of Aluminum Corporation of China Limited*, the *Measures for Leader Remuneration Management of Entity Enterprises of Aluminum Corporation of China Limited*, and other remuneration management measures. Chalco continuously improves the competitiveness of employees' salaries, attracts talents through a sound incentive mechanism, and strives to establish a trust-based talent mechanism. Chalco strives to deepen reform of remuneration distribution, establishes a remuneration system with post value and performance contribution as the basis which is compatible with local labor market standards, and reinforces the remuneration concepts of increased remuneration for increased performance and decreased remuneration for decreased performance.

Meanwhile, the Company has been continuously improving the multi-level incentive guarantee system, formulated the *Benefits Evaluation System*, and further improve incentive mechanisms for the transformation of independent innovations and scientific and technological achievements with several incentive measures flexibly adopted. These can stimulate the enthusiasm and creativity of employees:



The Company has also set up a special incentive fund to encourage employees who have made outstanding contributions.

The Company also developed an incentive mechanism of stock option for our directors, senior managers, middle-level managers, and core technical (business) personnel and simultaneously discloses the 2021 Restricted Stock Incentive Plan of Aluminum Corporation of China Limited in A shares and H shares (for details, please refer to the "Summary Announcement of Aluminum Corporation of China Limited's 2021 Restricted Stock Incentive Plan (Draft)"<sup>22</sup>).

In 2021, the Company continued to improve the new market-based assessment model, linked the incentive compensation of leaders to the assessment indexes. By appropriately reducing the weights of financial indexes and increasing the weights of non-financial indexes, including safety and environmental protection, production quality, and labor productivity, the Company promoted all-factor benchmarking and whole-process lean control. The weight non-financial assessment index for leaders of the Company's headquarters was approximately 40%, and that of leaders of the branches and subsidiaries was approximately 50%.

### 8.1.4 Listening to Employees

The Company respects the employees' right to know and supervise, and its branches and subsidiaries have established respective workers congress and a sound factory affairs disclosure mechanism. Through these channels, employees can express their opinions and suggestions on corporate policies, working environment, and development strategies. Matters involving major corporate decisions will be submitted to the worker congress for deliberation and decision.

In 2021, Zhongzhou Aluminum held the Second joint meeting of the third workers' congress to review major issues related to the reform of the internal distribution system, solicit the opinions and suggestions of the majority of front-line employees. It solicited a total of 43 proposals during the worker congress, collected and sorted out the replies to the proposals, and gave them all back to the proposers.

<sup>22</sup>

Link to "Summary Announcement of Aluminum Corporation of China Limited's 2021 Restricted Stock Incentive Plan (Draft)". [http://www.sse.com.cn/disclosure/listedinfo/announcement/c/new/2021-12-22/601600\\_20211222\\_35\\_VzM8eFPY.pdf](http://www.sse.com.cn/disclosure/listedinfo/announcement/c/new/2021-12-22/601600_20211222_35_VzM8eFPY.pdf)

## Putting people first to create a joyful workplace (continued)

### 8.2 Guaranteeing employee benefits

Chalco has established a comprehensive welfare security system, paying full social insurance and provident fund for employees, and providing annuities and pensions for all employees. The Company also provides various non-salary benefits, such as health check-ups, heating subsidies, job subsidies, overtime subsidies, preferential subsidies for children's schooling, and birthday gift coupons, and provides welfare guarantees such as labor protection supplies and high-temperature heat relief products at front-line workplaces. With the *Leave System for Employees of the Headquarters of Aluminum Corporation of China Limited*, the Company guarantees employees' rights to legal leave such as paid leave and maternity leave per the law, implements a flexible leave policy, and sets up a standardized enterprise annuity system. During the reporting period, Chalco handled the Company's employee supplementary medical and group accident insurance and enterprise annuities of 69 subsidiaries.

#### Case

#### Zhongzhou Aluminum's Benefits Service Upgrading

In 2021, Zhongzhou Aluminum formulated the *Zhongzhou Aluminum Annual Benefit Plan*, which raised the employee benefit from the previous standard of RMB800 per person per year to RMB1,600 per person per year, and made a clear quota allocation for each traditional holiday benefits payment standard. The total annual benefit expenditure was more than RMB6 million.

#### Case

#### Chalco Mining Offered Collective Benefits to Employees

In 2021, amid the severe epidemic prevention and control situation and various challenges including material and personnel transportation, during the New Year's Day, Spring Festival, Mid-Autumn Festival, and other traditional festivals, Chalco Mining distributed welfare rice, flour, oil, fruits, moon cakes, miscellaneous grains, and other daily necessities to 5,044 employees who were on duty or retired early, with a total amount of more than RMB 5 million.



### 8.3 Empowering employee

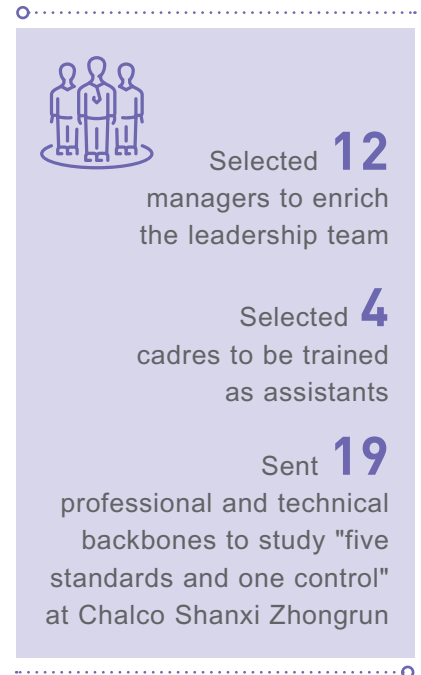
Chalco adheres to the concept of “putting people first, cherishing talents, and caring for employees”, attaches importance to employee training and talent pipeline construction provides employees with a broad development platform and space, and establishes a clear and transparent career development path for all types of talents, to enable employees to grow together with the Company.

#### 8.3.1 Employee development and training

Chalco continues to build a comprehensive and systematic staff training system to help employees improve their working ability and professional value. The Company implements the strategy of invigorating the enterprise through human resource development and the *Interim Measures for the Administration of Employee Education and Training at Headquarters of Aluminum Corporation of China Limited*, continues to explore the construction of leadership development models, carries out talent evaluation and personality analysis, and continuously strengthens the training of young managers. The Company actively builds an online and offline training system by building Chalco E-Enterprise, an online learning platform, to help employees learn general skills, knowledge about safety, environmental protection, law, and other topics, thus realizing the combination of management and platform, as well as online and offline integration. The company include all employee training into the online platform after it was created, which allows the company to conduct safety educations and skill training more easily and conveniently.

The Company provided training for all types of employees. In terms of employee training, the Company continuously optimized the management team composition. The Company selected 12 outstanding young managers to enrich the leadership team, four cadres with potential to be trained as assistants, several outstanding young employees to receive training in branches and subsidiaries, and sent 19 professional and technical backbones to study “five standards and one control” at Chalco Shanxi Zhongrun.

In 2021, the Company also conducted a survey of training requirements from departments, and departments created and organized the annual training plan based on the results of the survey. The major training content include:



Financial department	Integrated department	Human resources department
the department organized trainings for employees who in charge of financial management from the Company and subsidiaries, focusing on learning the national fiscal policy and taxation system. According to the requirement of refining internal control system from SASAC, the department organized business process and current policy arrangement related to internal control system building, as well as multiple trainings on creating internal control metric and flowchart.	the department organized trainings to enhance employees' awareness of confidentiality of information by introducing key confidentiality facts during the daily work.	the department organized manager training classes for subsidiaries to introduce the National human resources laws and policies, and assigned key tasks including working production rate improvement and “three institutional reforms”.



## Putting people first to create a joyful workplace (continued)

### Case

#### Guangxi Branch – Performing Professional Skills Identification and Broadening New Channels for Staff Development

In 2021, Guangxi Branch responded to the reform of the national vocational qualification and certification system. As per the requirements of the enterprise's skilled talent team construction, it carried out the identification of vocational skill levels in eight types of work and three levels. A total of 202 people participated in 18 training sessions, with a total of 1,330 hours of specialized training. The Guangxi Branch has trained 150 new high-skilled talents, including 81 senior workers, 52 technicians, and 17 senior technicians.



Guangxi Branch organizes front-line employees to participate in the competition of post-operation standard analysis and optimization design, focusing on the contestants' diagnosis of behavior safety, waste identification, and operation standard, to improve the team's ability to analyze and solve problems.

Table: Training of Chalco Employees in 2021

		Number of trainees	Percentage (%)	Average hours of training (hour)
Percentage of trainees by rank	Senior management	157	100	110
	Department heads	875	100	57
	Other office employees	7,812	88.7	42
	General and technical worker	41,439	82.5	30
Training by gender	Male	44,080	88.2	45.7
	Female	6,203	61.4	34.1

## 8.4 Prioritizing employee care

Chalco has always cared for its employees, protecting the vital interests of employees solidly and meticulously, listening to the demands of employees, and actively providing assistance to employees in difficulties. Chalco builds a healthy working environment and atmosphere, helped employees achieve a balance between work and life, and enhanced employees' sense of identity and satisfaction.

### 8.4.1 Employee assistance

The Group continues to carry out work around the relief of difficult employees, targeted assistance, model worker management services, and other aspects. In 2021, Chalco's branches and subsidiaries spent a total of RMB10.97 million in assistance.

Case	Case
<p><b>"Donating Ten Cents a Day, Helping Your Colleagues" Employees' Mutual Aid Activity to Treat Serious Illness</b></p> <p>Guizhou Branch has carried out a "Donating Ten Cents a Day, Helping Your Colleagues" mutual aid activity to treat serious illness for 11 consecutive years. As of 2021, it has helped 196 employees, with a total amount of RMB2.07 million. In 2021, a total of 27 employees were helped, with an amount of RMB247,000, leaving no employees in difficulties suffering from illness due to poverty with targeted assistance.</p>	<p><b>Care for Employees in Zhongzhou Aluminum</b></p> <p>To better care for employees in need, Zhongzhou Aluminum has formulated the <i>Zhongzhou Aluminum Assistance Work System</i> to help families of employees in need. During the 2021 Spring Festival, the enterprise visited 43 workers in difficulty and paid RMB35,000 in subsidies. It assisted 10 workers with serious illness and difficulties with RMB47,000 for difficulty relief.</p>

### 8.4.2 Employee activities

The Company attaches great importance to the physical and mental health of employees. This year, in combination with the self situation of the company and the requirement of epidemic prevention and control, the Company and its branches and subsidiaries carried out online activities such as online lantern appreciation, calligraphy, painting photography, reading and essay solicitation, poetry recitation, home fitness, and cooking, and organized small-scale activities such as walking, tug-of-war, rope skipping, aerobics, and held special lectures on mental health and first aid to build a platform for ensuring the physical and mental health of employees.



The morning view of the staff sports center of Guangxi Branch, employees, family members, and surrounding residents are walking and running in the morning.

## Putting people first to create a joyful workplace (continued)

### 8.4.3 Caring for women

Representatives of the worker congress of the Group meet the requirements for the proportion of female representatives, encourage female employees to actively participate in labor and skills competitions, and fully consider the proportion of female employees in various evaluation activities.

#### Case

#### Branches and subsidiaries of Chalco Hold Splendid "Woman's Day" Activities

In 2021, Chalco held several recreational activities to celebrate International Women's Day on March 8, including theme essay solicitation, reading sharing, cake DIY among others for female employees and encourage female employees to show their elegance and glamour in the cheongsam fashion show, vocal music show, fun sports games, and photography activities. The Company also organized a special physical examination for all female employees and sent holiday gifts and blessings to female employees.



Chalco Shanxi New Material holds Commendation Conference to celebrate International Women's Day and Cheongsam Fashion Show



# 9

## Improving quality to lead industry prosperity

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interests of the operation
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## Improving quality to lead industry prosperity



Chalco has provided high-quality products and services and is committed to building a quality brand of “choosing Chalco for the best aluminum”. The Company also chases to promote multiple products faster and better, and strives to create more value for customers. Chalco, as a leading enterprise in the industry, has always taken leading the development of the industry as its responsibility, constantly promoting industry exchanges, and driving the high-quality development of the industry with tangible actions.

### 9.1 Quality management system

The Group strictly abides by relevant national laws and regulations, continuously improves the quality management system, ensures the quality of products and services with a sound mechanism, and continuously promotes the improvement of quality. The Company takes the *Quality Management Measures* as the basis for the quality assurance system and clearly stipulates that the quality of intermediate products and final products should be controlled by self-inspection, cross inspection, and special inspection to ensure that the products meet relevant quality standards and contract requirements. In 2021, the Company passed the certification of GB/19001-2016/ISO9001: 2015 Quality Management System, and all the entity subsidiaries received the ISO9001 quality management system certification. The quality management system of 10 subsidiaries including Guangxi Branch reached the four-star level.

The Company strictly implements the national appraisal standards to identify the product quality. Only the products that have passed the inspection can be shipped and sold. The Company entrusts the National Light Metal Quality Supervision and Inspection Center to conduct supervision and spot checks on the main products of its subsidiaries every year. In case of quality failures, the company deals with them in strict accordance with the provisions of the *Quality Management Measures* and relevant handling measures or the contractual measures.

### 9.2. Pursuing product quality

Focusing on the vision of “becoming a leading enterprise in China and first-class enterprise in the world” in terms of quality, the Group upholds quality-led, problem-oriented, goal-oriented, and result-oriented guidelines, and ensures that the product quality reaches the industry-leading level.

In 2021, Chalco took the improvement of production management as the mainline, adopted a five-step approach featuring system improvement, precise diagnosis, thorough penetration, performance assessment, and outperforming benchmarking enterprises, and promoted all-factor benchmarking quality management. This year, the Company has been identified as a key benchmark state-owned enterprise in the corporate governance benchmarking construction action by the State-owned Assets Supervision and Administration Commission of the State Council. Baotou Aluminum won the 19th National Quality Award and quality control (QC) achievement won the highest award of the International Conference on QC Circle (ICQCC), the Gold Medal. The Company also developed three, ten, and seven national and industry standards in the electrolytic aluminum field, carbon field, alumina field respectively.

### 9.2.1 Product safety guarantee

Product safety is the basis for ensuring product quality. Chalco attaches great importance to the influence of products on customers' health and safety. Following various international standards, laws, and regulations, the Group has formulated the *Measures for Quality Management of Aluminum Corporation of China Limited*, the *Measures for Management of Technical Inspection of Aluminum Corporation of China Limited* and other relevant management documents. The Company has also formulated enterprise standards that are higher than national standards and industry standards. According to the special needs of customers, it strictly ensures that the content of elements in products does not exceed the enterprise standards, and resolutely puts an end to the addition of harmful elements such as lead, mercury, and arsenic, to ensure customers' usage safety to the greatest extent and meet their needs. During the reporting period, there was no product recall due to health and safety reasons.

### 9.2.2 Product quality improvement

Chalco strives to embrace an era of high-quality products coupled with practical actions. The Group has issued corporate standards for products including metallurgical grade alumina, aluminum ingots for remelting, pre-baked anodes for aluminum electrolysis, and fine alumina. Among them, "Metallurgical Grade Alumina", "High White Filler Aluminum Hydroxide" and "Calcined  $\alpha$  Alumina" have been publicized on the public service platform for standardization information disclosure of the Standardization Administration of the P.R.C.

The Group provides customers with high-quality and industry-leading products from the perspective of customer demand, such as remelting aluminum ingots (molten aluminum) to meet individual needs, fine alumina to meet customized needs, and high-purity aluminum to meet the needs of military and aerospace industries. This year, the Company's ratio of first-grade alumina, the share of cells for electrolytic aluminum liquid AL99.85 or above, and the ratio of first-grade pre-baked anode climbed by 11.6%, 12.0%, and 3.7%, respectively, compared with those in 2020.



The ratio of first-grade alumina climbed by

**11.6%**

compared to 2020

The share of cells for electrolytic aluminum liquid AL99.85 or above climbed by

**12.0%**

compared to 2020

The ratio of first-grade pre-baked anode climbed by

**3.7%**

compared to 2020

## 9.3. Safeguarding rights and interests of the operation

### 9.3.1 Intellectual property protection

The Group attaches great importance to protecting its own intellectual property rights and ensures that it does not infringe the intellectual property rights of others, and strictly abides by the *People's Republic of China Patent Law*, the *People's Republic of China Advertising Law*, and other laws and regulations, and manages the use of trademarks and patents within the Company per the relevant intellectual property management system. The Group has issued trademark management measures, carried out daily monitoring of trademark publicity and release, put in place measures to deal with infringement, authorized subsidiaries to carry out trademark anti-counterfeiting activities in certain areas, ensured the uniqueness of trademark exclusive rights, and promoted the sustainable development of scientific and technological research and development.

### 9.3.2 Information security and personal privacy protection

The Group strictly abides by the *Law of the People's Republic of China on Guarding State Secrets*, the *Interim Provisions on the Protection of Business Secrets of Central Enterprises*, the *Law of the People's Republic of China on the Protection of Personal Information*, and other laws and regulations, and has formulated robust measures to protect company information and customer privacy, including the *Emergency Plan for Cybersecurity Incident of Aluminum Corporation of China Limited* and the *Measures of Data Management of Aluminum Corporation of China Limited (Trial)*,

In terms of information security, the Company supervises the implementation information security protection work through review and inspection, and relevant departments provide rectification guidance and rectification supervision for the problems identified in the review process. The Company has also assigned designated personnel to identify information security risks in an all-around way and adopted relevant measures to protect information security from the source. The Company also entrusts professional IT companies to reduce information security risks through technical means, vulnerability scanning, security detection, and other methods. The Company also strengthens the management of commercial confidential data and information network security, requiring that all materials used in public meetings be public data of the Company.

In terms of sales business, the Company requires all units to strictly comply with the corresponding laws and regulations to carry out marketing and advertising activities. The Company reviews the key content of sales management while using information technology to manage market sales, building an information platform, realizing the closed-loop of the whole process of production, marketing, tracking, and feedback, thus further strengthening internal control and in-process supervision. In the marketing plan, the Company highlights that marketing personnel at all levels should consciously abide by the company's confidentiality regulations, strengthen the awareness of confidentiality of sales information and market information, and strictly prohibit the disclosure of company trade secrets. The Company requires that the purchase and sale contract should have corresponding confidentiality clauses, which shall be checked by the Legal Department before signing.

## Improving quality to lead industry prosperity (continued)

### 9.4 Optimizing service guarantee

The Company adheres to the integrity-based, service-oriented, and market-oriented concept for marketing, and strives to build Chalco into a company that customers are willing to deal with. The Company has established an orderly, coordinated, and efficient marketing management system, and formed a sales network covering China. By providing customers with high-quality products and technical support, the Company actively carries out pre-sales, sales, and after-sales services to create value for customers and realize shared development.

In 2021, the Company improved the credit management system, revised and issued the *Measure for Customer Credit Management of Aluminum Corporation of China Limited* according to the actual situation of credit management work, organized and carried out marketing customers information sorting, checked credit risks, and further improved management quality and details. The Company has carried out special credit inspection and marketing process compliance supervision for several units through inter-departmental cooperation and conducted special credit management training and warning education.

The Company established a feedback processing mechanism for after-sales service, timely statistics, and feedback on the number of complaints, and has formulated a special processing process for quality disputes. The Company also collects the after-sales information of its branches and subsidiaries and conducts centralized management. After-sales problems are handled or guided by various professional departments. In 2021, the Company received five complaints about the packaging of alumina products, all of which were properly handled, without any service-related complaints.

### 9.5 Maintaining market stability

In 2021, facing the challenging market landscape, Chinalco took “benchmarking first-class enterprises and striving to be a first-class enterprise” as the starting point, market rules as direction, efficiency as the center, and all-factor benchmarking as a step, and actively responded to adversities. These include normalization of epidemic prevention and control, double control of energy consumption, regional power cut, drastic fluctuation of commodity prices, turmoil in overseas resource countries, and deterioration of the international economic situation. The Company strengthened the construction of “Three Platforms”, and promoted the quality and efficiency of the marketing system and the construction of “five abilities”<sup>23</sup> of marketing. These have further improved corporate operating capacity, secured stable operation, and maintained the stability of the domestic aluminum market.

### Steadily Consolidating Resources Supply

Chalco continuously enhances its allocation of bauxite resources across the globe, and steadily promotes strategy of “Dual areas”<sup>24</sup>. Fully leveraging the advantages brought by the mineral resources it owns in Boffa, Guinea, and by integrating other high-quality resources in the vicinity of the area, Chalco’s Bauxite mining area in Boffa was operating up to standards as a stable overseas supply source. Chalco is also unremittingly studying the quality, scale, development conditions of bauxite resources both in and outside China, as well as the status quo and trend of the industry. It is actively seeking opportunities for resources acquisition and adjusting procurement schemes in a timely manner to ensure resource adequacy.

### Lowering Logistics Cost via Multiple Measures

Chalco has boosted the efficiency of logistics by innovating operating models and optimizing labor use, further reduced cost by proactively launching the freight network platform and reducing intermediate links, and lowered the cost of transportation by land and sea by continuously following the policy of “Increase in Quantity, Decrease in Price”. Facing the global headwind of sharp price increase of commodities (including oil and gas) in 2021, Chalco has proactively defused the risks brought by market fluctuations and achieved the goal of reducing cost of logistics for the year.

### Pursing Transformation for Energy Security

Chalco has carefully studied the relevant policies about the “Dual Carbon” national goal. Taking energy supply, market demand, and industrial chains into account, Chalco has reduced its energy intensity and increased the proportion of clean energy in the energy mix through such measures as accelerating the energy-saving and carbon-reducing transformations, facilitating the use of clean alternatives, and speeding up transitioning to clean energy. Therefore, it has successfully reduced the impacts of fluctuations such as the dual control of energy consumption and intensity and regional power limit, while ensuring energy security.



<sup>23</sup> The “five abilities” refers to abilities in competitiveness, innovation, controlling, influence and risk resilience

<sup>24</sup> “Dual areas”: refers to development in domestic coastal areas and overseas areas

## 9.6 Empowering partners

Building a stable and sustainable supply chain is the core link of the Company's business development.

Chalco strives to provide a public, transparent and fairness collaboration relations for suppliers, and keeps building a stable and sustainable supply chain by optimizing management system, standardizing management measures, establishing digital procurement platform. The Company ensures the stable and sustainable supply chain as well as considering the benefits for suppliers, and supports suppliers to make better management that enable developments in the supply chain for both suppliers and the Company.

### 9.6.1 Supplier management system

To strengthen the dynamic management of suppliers, the Company has formulated the *Suppliers Management Measures of Aluminum Corporation of China Limited* and the *Procurement Management Measures of Aluminum Corporation of China Limited*, which stipulates the management measures for the access, elimination, and evaluation of suppliers, and urges suppliers to continuously improve the quality and service of the products they supply. As of the end of 2021, the Group had 3,425 suppliers of raw materials, all of which were from China's mainland.

According to the Supplier Management Measures, the Company needs to conduct pre-qualification during the supplier access stage, and strictly consider the following matters:

- Whether the suppliers have legal and valid basic documents;
- Whether the suppliers involved in hazardous chemicals and special manufacturing industries have corresponding qualification certificates;
- Whether the suppliers can provide a perfect quality assurance system;
- Whether the suppliers have a record of violations or major legal disputes;
- Whether the suppliers can perform the contract, good business performance, and provide adequate after-sales service.

For suppliers in cooperation, the Company tracks and monitors them according to the principles of dynamic quantitative assessment and annual qualification review. For suppliers with poor social responsibility performance and have caused certain adverse effects in the society, the Company will downgrade them; for suppliers causing serious adverse effects, the Company will terminate the transaction and freeze them in the Company's Enterprise Resource Planning System (ERP) system until their rectification is completed.

This year, Chalco promoted the transformation of digital procurement and improved procurement efficiency by using Alecp, a digital Internet procurement platform.

#### Case

### The "Alecp" Internet Procurement Platform

In February 2021, the "Alecp" platform was officially launched, which demonstrated a start of digital and informational procurement process. "Alecp" is an e-commerce service platform targeting the internal customers and users of the Group in the non-ferrous industry to provide commodity procurement for production and operation needs.

The platform provides a simple, smart, remotely, communication-based and open procurement platform, which supports users to compare price online and create orders automatically. The application of the platform save users time and improve the efficiency to follow the procurement processes. The platform also provides users with open, shared, and transparent" Internet procurement services, supply chain services, data services, and other value-added services. The product categories on the platform cover all materials and commodities needed by enterprises in the non-ferrous industry for production and operation.

Through the model of multi-supply channels and full market-based competition, the Company has further reduced procurement costs and improved procurement efficiency.



## Improving quality to lead industry prosperity (continued)

### 9.6.2 Management of environmental and social supply chain risks

The Company highly values the stability of the supply chain, and constantly promotes the “two reductions and two controls” of outsourcing, which refers to the reduction of outsourcing expenses, reduction of the number of contractors, control of non-essential outsourcing, and control of unsafe operations. The Company has made great efforts to achieve these four objectives, lowering the environmental and social risks of its supply chain.

The Company also strictly controls the logistics guarantee, keeping a close eye on the logistics safety guarantee in special natural and cultural periods such as the rainy season during the flood season, natural disasters, winter transportation, and winter Olympic games, coordinating the logistics guarantee of key routes involving Baotou Aluminum, Chaolco Shanxi Zhongrun and Guangxi Huasheng, formulating the daily plans for logistics guarantee in advance, implementing the guarantee measures for transportation capacity, unloading, and other links, and systematically and predicatively grasping the logistics guarantee work to ensure the transportation needs of the enterprise.

At the same time, for suppliers with good performance, the Company will regularly deem them an excellent supplier.

#### Case

#### “2021 Chalco Outstanding Supplier” Award

According to the procurement principles and relevant regulations of bulk raw and auxiliary materials, after careful selection and extensive consultation, Chalco selected 55 suppliers as “Excellent Suppliers of Chinalco in 2021”, and the awards included six categories: Excellent Supplier Award, Cooperation Award, Regional Contribution Award, Most Potential Award, International Cooperation Award, and Innovation Service Award.

### 9.6.3 Building a green supply chain

Under the guidance of the new concept of green development, the Group actively fulfills its social responsibility, helps suppliers develop green development, and builds the Group’s green supply chain. According to the *Suppliers Management Measures of Aluminum Corporation of China Limited*, Chalco Materials shall review the relevant environmental protection qualifications of the suppliers to ensure that they meet the national environmental protection requirements. The Company requires production suppliers to make full use of energy and save resources in product manufacturing, use, recycling, and waste treatment, thus reducing environmental pollution and strictly controlling pollutant emissions from the source.

#### Case

#### Chalco Materials and Chalco Logistics Build Chalco Green Supply Chain Ecology

Chalco Materials strictly controls suppliers’ access and includes suppliers’ environmental protection into the assessment and evaluation system. In 2021, Chalco Materials purchased 19 million tons of coal, alkali, coke, and other bulk materials for the Group’s entities, with all indicators in compliance with environmental protection requirements. By optimizing the procurement logistics plan and reducing carbon emissions in the transportation process, the Company has gradually established a new green procurement model of “materials exploration and technical services” of Chalco to achieve green supply. Through the application of electric heavy trucks, Chalco Logistics reduced emissions by about 745 tons of CO<sub>2</sub>e throughout the year.

# 10

## Assuming responsibility to build a harmonious society

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## Assuming responsibility to build a harmonious society

Throughout its development, Chalco has always promoted social causes and integrated fully social responsibility management into its development strategies and ordinary operations. The Company actively participates in community development, makes earnest efforts to public welfare undertakings, and continues to carry out aid to Tibet and Qinghai, rural revitalization, and charity donations projects, assuming its responsibility as a corporate citizenship enterprise. The Company also responds to the Belt and Road Initiative and fulfills its social responsibilities to develop overseas projects and share development results with the local area. At the same time, in adherence to regular epidemic prevention, we powerfully and effectively carried out epidemic prevention and control work and were able to quickly resume work and production while ensuring the health and safety of personnel, contributing to building a better society. In 2021, the Company reviewed and revised the *Measures of the implementation of Social Responsibility Management of Aluminum Corporation of China Limited* to adjust the structure of our Corporate Social Responsibility Execution Committee and standardize the approval process for donations.

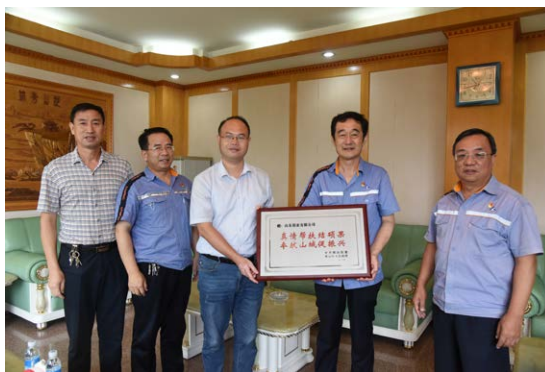
### 10.1 Contributing to rural revitalization

As a responsible listed enterprise, Chalco has always focused on our mission of rural revitalization. To effectively link the achievements of poverty alleviation with rural revitalization, the Company often dispatches its employees to poverty-stricken areas to carry out the following activities: investigate the actual situation, explore long-term development modes based on distinctive resources and market demand, develop industries with local advantages, guide resources to be effectively used for industry revitalization in such areas, and make joint efforts to build beautiful countryside.

#### Case

#### Chalco Shandong – Stationing Officers Were Assigned to Help Rural Development

For three consecutive years, Chalco Shandong has selected employee in key roles to participate in poverty alleviation programs in Jiaojiayu Village in Shandong Province. The focus is on arranging the employment of the young in poor households, granting children from poor households enrollment at Shandong Aluminum Vocational College with a preferential policy – i.e. 50% tuition waiver; and helping poor households facilitate medical expenses reimbursement. Meanwhile, Chalco Shandong helps villagers to establish the greenhouse demonstration base of “Qihe Fruit Tree Mushrooms” in Jiaojiayu Village, which not only generates income but also promotes the development of special industries. These are examples of the positive contributions made to the construction of rural civilization.





## Case

### Guizhou Branch – Consolidating the Results of Poverty Alleviation and Contributing to Rural Revitalization

In 2021, in order to consolidate the results of poverty alleviation and contribute to rural revitalization, stationing officials lead the villagers in Wangka Village of Guizhou Province to develop the hot pepper planting industry after in-depth field research and investigation the agricultural market from various aspects with the support of Guizhou Branch. With the cooperation and joint efforts of stationing officials and local villagers, as well as the financial support from several parties, Wangka Village successfully applied for several high-standard farmland construction projects at the end of 2021, with three new roads to cities built and roads connecting six villages built to provide transportation channels for the sale of hot peppers, which greatly accelerated the development process of agricultural modernization and helped to embark on the journey of revitalization and prosperity.





## Assuming responsibility to build a harmonious society (continued)

### 10.2 Implementing pandemic prevention and control

Chalco attaches great importance to the life, health, and safety of its employees and implemented a strict COVID-19 prevention and control policy to ensure its stable production and operation throughout the year. Facing the severe situation that the COVID-19 pandemic continues to wreak havoc across the world, Chalco and its subsidiaries issued the *Notice on Epidemic Prevention and Control* and the *COVID-19 Virus Protection Manual* as soon as the pandemic occurred. The Company established a “health card”, a health ledger, and other mechanisms for each employee, achieving full coverage of the Company for epidemic prevention and control. The Company simultaneously implemented strict epidemic prevention and control procedures and continued to regularly disinfect the factory area, canteens, commuter cars, and surrounding communities, while strengthening the control of entry and exit in the factory area and dormitory area. We also distributed protective materials including disposable protective masks, disinfectants, and alcohol to employees to ensure regular epidemic prevention and control to build a strong defense against the pandemic.

#### 10.2.1 Implementing Routine Epidemic Control Measures

The components of Zhongzhou Aluminum stepped up their Covid-19 prevention and control measures since August 2021. By adopting the hierarchical control method, they increased the disinfection frequency of crowded public areas such as office areas, production workshops, living and dining areas, organized specialized personnel including volunteers to check if every visitor follows the epidemic-control measures every day, and been calling on all employees to follow such epidemic-prevention rules as “wear masks, travel and gather less, and keep the one-meter social distance” in a strict manner. Also, while well implementing the prevention rules by themselves and ensuring normal production and operation, the enterprise also proactively cooperate with local governments to contribute to the prevention efforts locally, demonstrating their outstanding corporate social responsibility.



#### 10.2.2 Assisting in overseas epidemic response

In 2021, facing the newly-discovered delta variant, Chalco Guinea Company S.A, strictly follows Chalco's instructions and requirements of overseas epidemic prevention and control, adopted such epidemic prevention and control measures as closed-off management, regular disinfection, and daily temperature measurement for all employees. In terms of vaccination, as some employees did not know about COVID-19 vaccines or were reluctant to get vaccinated against COVID-19, while others thought that vaccination could be a substitute for epidemic prevention, the Company invited experts to introduce the relevant knowledge to employees with a clear and easy-to-understand approach. With these efforts, the Company became the first mineral enterprise that all employees both in China and Guinea got vaccinated.

As Guinea was short of epidemic prevention materials and medical resources, the Company donated 110,000 masks, 10,000 kits, 4,000 kg of rice, and other necessities to the provincial and municipal governments, local hospitals, and surrounding communities in Boffa, Guinea while carrying out the epidemic prevention and control and ensuring safe production, to help the local to overcome the difficulties and fulfill the social responsibility of a state-owned enterprise. In addition, Chalco Guinea dispatched medical and managerial staff to the surrounding communities to do the following activities several times: prepare and distribute the French version of the *Knowledge on COVID-19 Prevention and Control Manual*, introduce the spreading approaches of the Delta variant to the residents, and disseminate the scientific knowledge of epidemic prevention and control and the general knowledge of healthy life, which garnered wide praise from the Guinean government and the residents in the surrounding communities.

### 10.3 Rushing to the rescue

As a state-owned company, Chalco highly honors responsibilities in times of crisis. When the “7.20” Extreme Rainstorm Event hit Henan Province, the Company unit in the province, under the leadership of the Chairman of the Board, inspected and eliminated the dangers in its respective defense areas, and ongoing inspections were conducted day and night. The Company sent real-time weather warning information and safety travel tips through WeChat groups and other forms of media, to improve the prevention awareness of all employees and make every effort to minimize the loss to production caused by the rainstorm. After the critical moment of the floods, the Company actively helped the locals to resume work and production. Through the Red Cross Society of Zhengzhou, the Company donated RMB 5 million RMB to Zhengzhou City and RMB 7 million to Henan Province, respectively, for flood control, disaster relief, and post-disaster reconstruction work.



Chalco has been improving the construction of its overseas platform and expanding its overseas coverage with its world-leading professional technologies and customer service. Chalco fulfills its responsibility for the development of overseas projects based on the Belt and Road Initiative and boasts world-class engineering technology. In the process of accelerating the layout of global development, Chalco Guinea's Boffa project is a major landmark project for Chalco to actively implement the Belt and Road Initiative, continuously deepening the pragmatic and friendly cooperation between China and Africa and enhancing sustainability capacity. This project is of great importance to promote the establishment of a long-term strategic partnership between China and Guinea and to enhance Guinea's economic and social development.

Chalco supports the local equipment constructions, which Promote friendly cooperation between the two sides



## Assuming responsibility to build a harmonious society (continued)

### 10.5 Focusing on Public Welfare Undertakings

Chalco has been putting public welfare undertakings on its agenda. In 2021, the Company actively made donations, offered partner assistance of RMB 15.4 million to the Karuo District of Chaya County in Tibet, RMB 6.5 million to Haiyan County in Qinghai, RMB 500,000 to the earthquake-stricken area in Yunnan and Qinghai Province, respectively.

#### Case

#### Volunteers of Guangxi Branch

Guangxi Branch of Chalco has formulated *Measures for the Management of Young Volunteers of Guangxi Branch of Chalco*, and built up 13 volunteer teams including “a service team for emergencies”, “a service team for poverty alleviation”, “a service team for the elderly” and “a service team for home appliance maintenance”. It actively explores new ways for public welfare activities and does the best for voluntary activities. The company has also organized employees to carry out voluntary activities for orphanages and special schools, showing its love and support for them. It has donated sports goods, stationery, and daily necessities to orphans and handicapped children, so as to help them grow up healthy and strong.



## Our Prospects



Looking into the future, Chalco will base on a new stage of development, and completely, accurately and comprehensively implement the new development concept. The company will actively service and integrating into the creating of the new development pattern, and firmly fulfill the role of “pioneer, key personnel, and leader” as a strategic mission, as well as firmly promote technology leading strategy and successfully achieve the three-year action to reform state-owned enterprises. The Company will accelerate the development towards low-carbon and intensive, and strive to build the “head” of modern aluminum industrial chain and original technology “birthplace” in order to provide more green, environmental friendly, low-carbon and high quality products to our client. We are contributing to building a greener industry and a greener world!



## Appendix I Environmental, Social and Governance Reporting Guide Content Index

Issue	Issue Description	Corresponding report chapter
Governance Structure	<p>A statement from the board containing the following elements:</p> <ul style="list-style-type: none"> <li>(i) a disclosure of the board's oversight of ESG issues;</li> <li>(ii) the board's ESG management approach and strategy, including the process used to evaluate, prioritise and manage material ESG-related issues (including risks to the issuer's businesses); and</li> <li>(iii) how the board reviews progress made against ESG-related goals and targets with an explanation of how they relate to the issuer's businesses.</li> </ul> <p>A description of, or an explanation on, the application of the following Reporting Principles in the preparation of the ESG report:</p> <p>Materiality: The ESG report should disclose:</p> <ul style="list-style-type: none"> <li>(i) the process to identify and the criteria for the selection of material ESG factors;</li> <li>(ii) if a stakeholder engagement is conducted, a description of significant stakeholders identified, and the process and results of the issuer's stakeholder engagement.</li> </ul> <p>Quantitative: Information on the standards, methodologies, assumptions and/or calculation tools used, and source of conversion factors used, for the reporting of emissions/energy consumption (where applicable) should be disclosed.</p> <p>Consistency: The issuer should disclose in the ESG report any changes to the methods or KPIs used, or any other relevant factors affecting a meaningful comparison.</p> <p>A narrative explaining the reporting boundaries of the ESG report and describing the process used to identify which entities or operations are included in the ESG report. If there is a change in the scope, the issuer should explain the difference and reason for the change.</p>	Statement from the Board
Reporting Principles		About this report
Reporting Boundary		
A Environmental Aspect A1: Emissions		
General Disclosure	<p>Information on:</p> <ul style="list-style-type: none"> <li>(a) the policies; and</li> <li>(b) compliance with relevant laws and regulations that have a significant impact on the issuer</li> </ul>	Promoting scientific and technological innovation to pursue green development
KPI A1.1	The types of emissions and respective emissions data.	Promoting scientific and technological innovation to pursue green development

Issue	Issue Description	Corresponding report chapter
KPI A1.2	Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Promoting scientific and technological innovation to pursue green development –Key environmental performance
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Promoting scientific and technological innovation to pursue green development –Key environmental performance
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Promoting scientific and technological innovation to pursue green development –Key environmental performance
KPI A1.5	Description of emissions target(s) set and steps taken to achieve them.	Promoting scientific and technological innovation to pursue green development – Protection of natural ecology
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them.	Promoting scientific and technological innovation to pursue green development – Protection of natural ecology
Aspect A2: Use of Resources		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.	Promoting scientific and technological innovation to pursue green development
KPI A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	Promoting scientific and technological innovation to pursue green development –Key environmental performance
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	Promoting scientific and technological innovation to pursue green development –Key environmental performance
KPI A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	Promoting scientific and technological innovation to pursue green development – Protection of natural ecology
KPI A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them.	Promoting scientific and technological innovation to pursue green development – Protection of natural ecology
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Promoting scientific and technological innovation to pursue green development –Key environmental performance

## Appendix I Environmental, Social and Governance Reporting Guide Content Index (continued)

Issue	Issue Description	Corresponding report chapter
Aspect A3: The Environment and Natural Resources		
General Disclosure	Policies on minimising the issuer's significant impacts on the environment and natural resources.	Promoting scientific and technological innovation to pursue green development – Protection of natural ecology
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	Promoting scientific and technological innovation to pursue green development – Protection of natural ecology
Aspect A4: Climate Change		
General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	Promoting scientific and technological innovation to pursue green development – Tackling climate change
KPI A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	Promoting scientific and technological innovation to pursue green development – Tackling climate change
B. Social		
Employment and Labour Practices		
Aspect B1: Employment		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	Putting people first to create a joyful workplace – Protecting employees' rights and interests
KPI B1.1	Total workforce by gender, employment type (for example, full- or parttime), age group and geographical region.	Putting people first to create a joyful workplace – Protecting employees' rights and interests
KPI B1.2	Employee turnover rate by gender, age group and geographical region.	Putting people first to create a joyful workplace – Protecting employees' rights and interests
Aspect B2: Health and Safety		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	Pursuing scientific management to ensure operational safety
KPI B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	Pursuing scientific management to ensure operational safety- Comprehensive safety management measures
KPI B2.2	Lost days due to work injury.	Pursuing scientific management to ensure operational safety- Comprehensive safety management measures

Issue	Issue Description	Corresponding report chapter
KPI B2.3	Description of occupational health and safety measures adopted, and how they are implemented and monitored.	Pursuing scientific management to ensure operational safety
Aspect B3: Development and Training		
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	Putting people first to create a joyful workplace – Empowering employee
KPI B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	Putting people first to create a joyful workplace- Empowering employee
KPI B3.2	The average training hours completed per employee by gender and employee category.	Putting people first to create a joyful workplace – Empowering employee
Aspect B4: Labour Standards		
General Disclosure	Information on:	Putting people first to create a joyful workplace-Protecting employees' rights and interests
	(a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	
KPI B4.1	Description of measures to review employment practices to avoid child and forced labour.	Putting people first to create a joyful workplace-Protecting employees' rights and interests
KPI B4.2	Description of steps taken to eliminate such practices when discovered.	Putting people first to create a joyful workplace-Protecting employees' rights and interests
Operating Practices		
Aspect B5: Supply Chain Management		
General Disclosure	Policies on managing environmental and social risks of the supply chain.	Improving quality to lead industry prosperity – Empowering partners
KPI B5.1	Number of suppliers by geographical region.	Improving quality to lead industry prosperity- Empowering partners
KPI B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, and how they are implemented and monitored.	Improving quality to lead industry prosperity – Empowering partners



## Appendix I Environmental, Social and Governance Reporting Guide Content Index (continued)

Issue	Issue Description	Corresponding report chapter
KPI B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	Improving quality to lead industry prosperity – Empowering partners Empowering partners
KPI B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	Improving quality to lead industry prosperity- Empowering partners
Aspect B6: Product Responsibility		
General Disclosure	Information on:	Improving quality to lead industry prosperity-Pursuing product quality
	(a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	
KPI B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	Improving quality to lead industry prosperity-Pursuing product quality
KPI B6.2	Number of products and service related complaints received and how they are dealt with.	Improving quality to lead industry prosperity- Safeguarding rights and interests of the operation
KPI B6.3	Description of practices relating to observing and protecting intellectual property rights.	Improving quality to lead industry prosperity- Safeguarding rights and interests of the operation
KPI B6.4	Description of quality assurance process and recall procedures.	Improving quality to lead industry prosperity-Pursuing product quality
KPI B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored.	Improving quality to lead industry prosperity – Safeguarding rights and interests of the operation

Issue	Issue Description	Corresponding report chapter
Aspect B7: Anticorruption		
General Disclosure	Information on:	Corporate governance- Integrity building
	(a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	
KPI B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	Corporate governance- Integrity building
KPI B7.2	Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored.	Corporate governance – Integrity building
KPI B7.3	Description of anti-corruption training provided to directors and staff.	Corporate governance – Integrity building
Community		
Aspect B8: Community Investment		
General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests.	Assuming responsibility to build a harmonious society
KPI B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	Assuming responsibility to build a harmonious society
KPI B8.2	Resources contributed (e.g. money or time) to the focus area.	Assuming responsibility to build a harmonious society

## Appendix II Recommendations of the Task Force on Climate related Financial Disclosures Content Index

Issue	Issue Description	Corresponding report chapter
		Statement from the Board;
Governance	a) Describe the board's oversight of climate-related risks and opportunities.	5.4 Risk management
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	5.4 Risk management
Strategy	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	7.2.2 Identifying impacts 7.2.3 Seizing opportunities
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	7.2.2 Identifying impacts 7.2.3 Seizing opportunities
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	–
	a) Describe the organization's processes for identifying and assessing climate-related risks.	5.4 Risk management
Risk Management	b) Describe the organization's processes for managing climate-related risks.	5.4 Risk management 7.2.2 Identifying impacts
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	–
Metrics and Targets	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	–
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	7.4 Key environmental performance
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	7. Promoting scientific and technological innovation to pursue green development (environmental targets) 7.3 R&D of low-carbon technology

## APPENDIX 3 FEEDBACK FORM

Dear reader:

Hello! Thank you very much for taking time to read the Report. In order to continuously improve the preparation of the report and promote the Company's work in ESG, we especially hope to listen to your opinions and suggestions, please let us know!

1. What is your identity regarding to Chalco (e.g. investor, employee, etc.)?  
☐Government ☐Employee ☐Business Partner ☐Environmental Organization  
☐Media ☐Community ☐Others (Please specify)
2. Your overall assessment to the Report is:  
☐Very Good ☐Good ☐Fair ☐Poor ☐Very Poor
3. How do you think of the structure of the Report?  
☐Very Reasonable ☐Good Reasonable ☐Fair General ☐Poor ☐Very Poor
4. How do you think of the design of the Report?  
☐Very Good ☐Good ☐Fair ☐Poor ☐Very Poor
5. How do you think of the readability of the Report?  
☐Very Good ☐Good ☐Fair ☐Poor ☐Very Poor
6. How do you think of the quality of the ESG information in the Report?
7. Which disclosed issues do you pay attention to in the Report?  
(please choose 3 issues at most)  
☐Pollutant discharge management ☐Ecological environment and biodiversity protection  
☐Energy management ☐Water management ☐Renewable energy utilization  
☐Carbon emission management ☐Response to climate change risks and opportunities  
☐Environmental emergency prevention and response  
☐Land use and mining area reclamation ☐Use of packaging materials  
☐Employee health and safety ☐Employee benefits and welfare  
☐Staff development and training ☐Fair competition ☐Supply chain management  
☐Leading industry and promoting industry development  
☐Community participation and contribution ☐Product quality control ☐Innovation and R&D  
☐Intellectual property protection ☐Customer privacy protection ☐Sustainable profit growth  
☐Corporate governance ☐Anti-corruption within the enterprise  
☐Transparency of financial and non-financial information ☐Stakeholder engagement ☐Others





## APPENDIX 3 FEEDBACK FORM

8. What are your opinions on or suggestions to the ESG Report and our performance?

You can mail the above feedback form to the following address:

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Website: [www.chalco.com.cn](http://www.chalco.com.cn)

Thank you very much for your understanding on and support of our work!

Aluminum Corporation of China Limited





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