



中铝国际工程股份有限公司  
China Aluminum International Engineering Corporation Limited

科技 + 国际



2022 环境、社会及管治报告  
Environmental, Social and Governance Report



**励精图治 创新求强**



**中铝国际工程股份有限公司**  
China Aluminum International Engineering Corporation Limited

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# 报告导读

## Report Introduction

本报告旨在响应利益相关方期望，展示环境、社会、企业管治及可持续发展方面的理念、管理、行动和成效。

This report aims at responding to the expectations of stakeholders by demonstrating the ideas, management, actions, and achievements of the Company in the aspects of environmental, social and corporate governance, as well as sustainable development.

### 时间范围

#### Reporting Period

2022年1月1日至2022年12月31日，部分内容适当追溯历史数据。

This report covers the period from January 1, 2022 to December 31, 2022. Some contents may appropriately trace historical data.

### 报告范围

#### Reporting Scope

无特殊说明，本报告涵盖中铝国际工程股份有限公司总部、分支机构及其附属子公司。

Unless otherwise specified, this report covers the headquarters, branches, and subsidiaries of China Aluminum International Engineering Corporation Limited.

### 报告周期

#### Reporting Cycle

本报告为年度报告。

This report is an annual report.

### 编制依据

#### Basis of Preparation

全球报告倡议组织《可持续发展报告指南（GRI Standards）》

*Global Reporting Initiative Sustainability Reporting Standards (GRI Standards)*

中国社会科学院《中国企业社会责任报告指南（CASS-CSR4.0）》

*Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR4.0) of the Chinese Academy of Social Sciences*

中国社会科学院《中国企业社会责任报告指南（CASS-ESG5.0）》

*Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-ESG5.0) of the Chinese Academy of Social Sciences*

上海证券交易所《上海证券交易所上市公司自律监管指引第1号—规范运作》

*Guidelines No. 1 of the Shanghai Stock Exchange (SSE) on the Application of Self-Regulation Rules for Listed Companies – Standard Operation*

香港联合交易所有限公司证券上市规则之《环境、社会及管治（ESG）报告指引》

“Environmental, Social and Governance (ESG) Reporting Guide” under the *Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited (HKEX)*

联合国 2030 可持续发展目标（SDGs）

United Nations 2030 Sustainable Development Goals (SDGs)

## 数据来源 Data Sources

除特殊说明，本报告所引用的信息与数据来自公司的正式文件、统计报告与财务报告，以及经由公司统计、汇总与审核的环境、社会及管治信息。

Unless otherwise specified, the information and data cited in this report come from the Company's official documents, statistical reports, and financial reports, as well as the environmental, social and corporate governance information that has been collected, aggregated, and audited by the Company.

## 报告获取 Report Access

可以在中铝国际官方网站、香港联交所网站以及上交所网站浏览和下载本报告的中文简体/英文、中文繁体/英文版本。

The publications in Chinese simplified/English, traditional Chinese/English are available to view and download at the official website of CHALIECO, the official website of the HKEX, and the official website of SSE.

## 称谓说明 Terms and Description

为便于表达和方便阅读，“中铝国际”“公司”“我们”表示中铝国际工程股份有限公司总部、分支机构及附属子公司。如无特殊说明，本报告中的“元”“万元”“亿元”分别代表“人民币元”“人民币万元”“人民币亿元”。

For convenience of indication and reading, “CHALIECO” “the Company” and “We” refer to the headquarters, branches, and subsidiaries of China Aluminum International Engineering Corporation Limited. Unless otherwise specified, “yuan” in terms of currency in this report represents “RMB yuan.”

## 董事长致辞

## Message from the Chairman

2022 年，面对复杂的全球经济形势，中铝国际坚持以习近平新时代中国特色社会主义思想为指导，深入学习宣传贯彻党的二十大精神，深入贯彻中铝集团“11336”高质量发展战略，坚定“科技+国际”发展战略，聚焦打造内涵式高质量发展新模式，为各方创造价值，加快成为世界一流的、提供有色技术装备服务综合方案的解决商。

Facing the complicated global economic situations in 2022, we, under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, have been studied, publicized and implemented the spirit of the 20th National Congress of the CPC and carried out the “11336” high-quality development strategy of Aluminum Corporation of China (CHINALCO) in a deep-going way, firmly implemented the development strategy of “S&T + Internationalization,” focused on creating a new model featuring substantive and high-quality development, and created value for all stakeholders. Efforts have been made to accelerate the building of a world-class integrated solution provider of nonferrous metal technologies, equipment and services.

### 积极奋发作为，扬帆高质量发展

#### Taking the initiative to achieve high-quality development

中铝国际坚定不移落实高质量发展理念，公司竞争力、创新力、控制力、影响力和抗风险能力得到全面增强，“一主一特一拓”布局结构更趋合理，差异化竞争优势正在逐步形成。2022 年，中铝国际上榜《财富》中国 500 强，蝉联 ENR 全球承包商 **250** 强，获得国家优质工程（金）奖 **3** 项、鲁班奖 **1** 项、钢结构金奖 **1** 项，省部级各类成果奖 **177** 项等，专业与能力获得行业认可。

We have effectively implemented the concept of high-quality development, and strived to make CHALIECO more competitive, innovative, risk-resilient, and capable of exerting a greater level of influence and control over the economy. The layout structure featuring “main business, featured business, and scalable business” has been becoming more reasonable, and the differentiated competitive advantage has been preliminarily formed. In 2022, CHALIECO ranked on the list of the Fortune China 500, and the list of Engineering News-Record (ENR)’s Top **250** International Contractors successively. It also won **three** (gold) prizes of National Quality Engineering Award, **one** prize of China Construction Engineering Luban Award, and **one** gold prize of China Construction Engineering Steel Structure Award, as well as **177** achievement awards of various kinds at provincial/ministerial level. The professionalism and capability of CHALIECO have been recognized by the industry.

## 坚持科技创新，积蓄发展力量

### Gaining development momentum with innovation in science and technology

中铝国际胸怀“国之大者”，加大研发投入，强化科技创新引领。2022年，公司召开中铝国际科技创新大会，取得了一批具有行业影响力的重大科技成果，“铝冶炼数字化交付与智能运维一体化集成平台的研发与应用”等**15**项成果均达到国际先进以上水平。公司连续5届获得中国专利奖殊荣，培养出一批科技创新领军人才，全年新增**2**名有色行业工程勘察设计大师。公司强化数智赋能，推动产业升级，实现数智服务创效超**2**亿元。

Bearing in mind the country's most fundamental interests, we have been increased investments in research and development, and strengthened the guiding role of innovation in science and technology. In 2022, CHALIECO held the scientific and technological innovation conference. Significant breakthroughs with industrial influence were made in science and technology. A total of **15** scientific and technological achievements including the “development and application of integrated platform for digital delivery and intelligent operation and maintenance of aluminum smelting” reached the internationally advanced level. CHALIECO has won the China Patent Award for five years in a row, and cultivated a batch of leading professionals of innovation in science and technology. In 2022, another **two** experts of CHALIECO won the honorary title of National Engineering Survey and Design Master in Nonferrous Metals Industry. Efforts were made to enhance digital and intelligent empowerment, aiming to promote industrial upgrading. The economic benefits generated by the digital and intelligent services of the Company reached over RMB**200** million.

## 践行“双碳”要求，助力绿色发展

### Facilitating green development while achieving carbon peaking and carbon neutrality goals

中铝国际坚定不移走绿色发展、循环发展、低碳发展道路，响应国家节能政策，推动绿色低碳技术创新，形成原创技术策源地，提高绿色能源使用占比，做好国内铝行业节能绿色环保技术应用的“引领者”；严控环境风险，主动把绿色建造、智慧建造融入工程设计全过程，坚守矿产资源开发与生态恢复修复并重，进一步推进绿色矿山、绿色工厂建设，推动有色工业绿色高质量发展。2022年，中铝国际环保投入**3,423.10**万元。

We have steadfastly followed the path of green, circular and low-carbon development, taken the initiative to respond to the national energy conservation policies, promoted innovation in green and low-carbon technology, taken the lead in turning CHALIECO into the source of original technologies. We have the proportion of green energy use, striving to be a leader in the application of energy-saving and green technologies in the domestic aluminum industry. We have strictly controlled environmental risks, taken the initiative to integrate green building and intelligent building into the whole process of engineer design, paid equal attention to the exploitation of mineral resources and the ecological restoration and rehabilitation, and further promoted the practices of green mines and green factories, aiming at facilitating the green and high-quality development of nonferrous metals industry. In 2022, the investments in environmental protection of CHALIECO reached RMB**34.231** million.



## 保障员工权益，共建美好家园

### Protecting employees' rights and interests and jointly building a better community

中铝国际始终致力于为员工提供平等发展的机会、搭建施展才能的广阔平台，切实保障员工基本权益，关爱员工身心健康，助力员工成长。2022 年，中铝国际举办了第五届“中铝国际杯”创新创业大赛、第二届工程技术职业技能大赛，通过以赛促练，提升员工职业技能。同时，我们积极履行社会责任，助力地方疫情防控，鼓励员工参与志愿服务，现有注册青年志愿者 **1,000** 余人，全年累计志愿服务 **3,605** 小时。持续参与乡村振兴，派出 **6** 名干部驻村工作，共计投入工作经费 **254.14** 万元。

We have always been committed to providing equal development opportunities for employees and building a broad platform for them to bring out the best of their talent. We have taken effective measures to protect the basic rights of employees, care about their physical and mental health, and facilitate their growth and development. In 2022, CHALIECO held the Fifth "CHALIECO Cup" Innovation and Creativity Competition and the Second Engineering Technology Occupational Skills Competition, aiming at improving the occupational skills of employees through competition. We have actively fulfilled social responsibilities. Efforts have been made to support local pandemic prevention and control, and encourage employees to participate in volunteer activities. With more than **1,000** registered volunteers, CHALIECO provided **3,605** hours of volunteer services throughout the year. CHALIECO continued to participate in rural revitalization and dispatched **six** resident village cadres to support the work. In 2022, the investments in rural revitalization of CHALIECO reached RMB**2.5414** million.

## 坚持共创共享，共建“一带一路”

### Working together to build the Belt and Road Initiative and share the development fruits

中铝国际坚持共商共建共享原则，积极发展与“一带一路”沿线国家、企业的经济合作伙伴关系，内部协同合作，积极拓展海外业务，初步形成“1+N+1”海外营销体系；依法合规纳税，带动当地就业，服务当地民生和环境可持续发展，力争创出高质量、成体系、有温度的中铝国际海外业务品牌。

Insisting on the principle of extensive consultation, joint contribution and shared benefits, we have taken the initiative to establish economic and cooperative relations with the governments of and enterprises in the countries and regions along the Belt and Road. Through enhancing internal collaboration, we have actively developed overseas business, and preliminarily formed the "1+N+1" overseas marketing system. We have paid taxes in accordance with the law, created job opportunities for local community, served local people's livelihood, and promoted sustainable development of the environment, striving to create a high-quality, systematical and humanistic overseas business brand for CHALIECO.

## 征程万里风正劲，重任千钧再出发

We should build on the strong momentum and forge ahead well into the future

2023年是贯彻党的二十大精神开局之年，也是实施“十四五”规划承上启下的关键一年。中铝国际将紧密地团结在以习近平同志为核心的党中央周围，全面贯彻习近平新时代中国特色社会主义思想，深刻领悟“两个确立”的决定性意义，增强“四个意识”、坚定“四个自信”、做到“两个维护”，把学习贯彻党的二十大精神与推进企业转型升级、实现高质量发展结合起来，知行合一，学以致用，以更加昂扬的斗志、更加扎实的作风投入到工作中，携手各方，为推进中国式现代化贡献力量！

The year 2023 is the first year for putting the spirit of the 20th National Congress of the CPC fully into effect, and is a crucial year for continuing to implement the 14th Five-Year Plan. We will, as always, rally closely around the Party Central Committee with Comrade Xi Jinping at its core, and fully implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. We will develop a deep understanding of the decisive significance of the establishment of Comrade Xi Jinping's core position on the Party Central Committee and in the Party as a whole and the guiding role of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era; strengthen our consciousness of the need to maintain political integrity, think in big-picture terms, follow the leadership core, and keep in alignment with the central Party leadership; stay confident in the path, theory, system, and culture of socialism with Chinese characteristics; and, uphold Comrade Xi Jinping's core position on the Party Central Committee and in the Party as a whole and uphold the Party Central Committee's authority and its centralized, unified leadership. We will combine the study and implementation of the spirit of the 20th National Congress of the CPC with the efforts of promoting corporate transformation and upgrading and achieving high-quality development. We will match our commitments with concrete actions and make the best of what we have learned. We will work together with all parties to contribute to the Chinese path to modernization with high morale and solid work style!









# 董事会 ESG 管治声明

## ESG Governance Statement from the Board

公司董事会承诺，本公司严格遵守《香港联合交易所有限公司证券上市规则》之《环境、社会及管治 (ESG) 报告指引》的披露要求，负责制定 ESG 方针、策略及目标，审核 ESG 风险评估结果，并对可能影响公司业务运作及利益相关方重点关注的 ESG 相关事宜进行监察。在董事会的领导与监督下，各职能部门以及各成员企业各司其职，协同配合，并定期召开会议，确保适用的 ESG 要求及政策得到遵循。

The board of directors of CHALIECO undertakes to strictly comply with the disclosure requirements of the "Environmental, Social and Governance (ESG) Reporting Guide" under the *Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited*, and is responsible for formulating the ESG guidelines, policies and targets, reviewing the ESG risk assessment results, and supervising the ESG-related issues that may affect corporate business operations or concerned by stakeholders. Under the leadership and supervision of the board of directors of CHALIECO, all functional departments and member enterprises perform their own duties and cooperate with each other, and hold meetings in a regular manner to ensure that applicable ESG requirements and policies are followed.

2022 年，公司对议题库进行完善，并对此进行实质性议题评估，明确年度重点工作。按照《中铝国际工程股份有限公司社会责任工作管理办法》《中铝国际工程股份有限公司社会责任管理模块及负面清单》，

各部门、各单位严格履行责任，中铝国际对 2022 年各模块社会责任指标完成情况进行自我评估，形成报告并上报中铝集团，并对在环境、安全、稳定等方面造成重大负面影响的单位，实行一票否决。

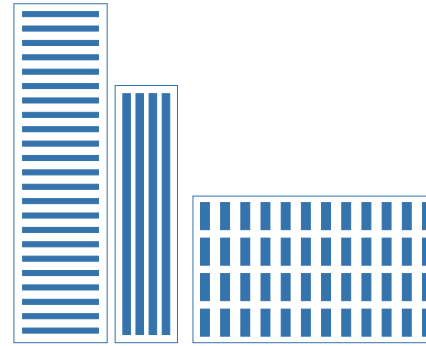
In 2022, CHALIECO refined the list of the ESG topics and conducted review on material topics, identifying the annual priorities of the year. In line with the *Administrative Measures of China Aluminum International Engineering Corporation Limited on Social Responsibility Work* and the *Social Responsibility Management Modules and Negative List of China Aluminum International Engineering Corporation Limited*, all departments and units of CHALIECO strictly performed their duties. CHALIECO conducted self-assessment on the completion of social responsibility indicators of each module in 2022, and made a written report to CHINALCO based on the assessment results. Units that had a major negative impact on the environment, work safety, stability and other aspects were vetoed by one vote.

未来，董事会将继续健全本公司的 ESG 治理，积极响应利益相关方的关切，制定相应的行动计划，并定期讨论相关目标的进度，推进 ESG 管理提升。

Looking ahead, the board of directors of CHALIECO will continue to improve its ESG governance, actively respond to the concerns of stakeholders, formulate corresponding actions and plans, and deliberate the progress towards relevant goals, striving to enhance ESG management.

# 关于我们 About Us

## 公司简介 Corporate Profile



中铝国际工程股份有限公司（简称“中铝国际”）成立于 2003 年 12 月 16 日，隶属于中国铝业集团有限公司（以下简称“中铝集团”）的工程技术战略单元，是中铝集团控股子公司，是中国有色金属行业领先的技术、工程服务与设备供应商。中铝国际于 2012 年 7 月 6 日在香港联交所主板（H 股代码：02068.HK）上市，于 2018 年 8 月 31 日在上海证券交易所（A 股代码：601068.SH）上市，成为“A+H”股有色工程技术第一股。

Established on December 16, 2003, China Aluminum International Engineering Corporation Limited (CHALIECO) is an engineering technology strategic unit and a holding subsidiary of Aluminum Corporation of China (CHINALCO), as well as a leading technology, engineering services and equipment provider in nonferrous metals industry in China. CHALIECO was listed on the main board of the Hong Kong Stock Exchange (stock code: 02068.HK) on July 6, 2012, and the Shanghai Stock Exchange (stock code: 601068.SH) on August 31, 2018, becoming the first nonferrous engineering company listed on both Hong Kong and Shanghai stock exchanges.

中铝国际现有员工 **12,000** 余人，是一家技术研发、测绘勘察、工程设计、工程建设、装备制造、工程铝应用和各类相关投资等业务为一体的高新技术企业。中铝国际成立近二十年来，累计获得省部级及以上科学技术奖近 **1,000** 项，其中，国家科技进步一等奖 **2** 项、二等奖 **20** 余项，主编和参加编写的国家及行业标准和规范 **140** 余项，拥有有效授权国内外专利 **3,000** 余件，创造了百余项“中国第一”和“世界第一”。2022 年度，以第 **97** 位和第 **119** 位蝉联美国《工程新闻记录》（ENR）“全球工程设计企业 **150** 强”和“全球承包商 **250** 强”榜单。





CHALIECO, now with more than **12,000** employees, is a new high-tech enterprise integrating research and development, surveying and mapping, engineering design, engineering construction, equipment manufacturing, engineering aluminum application and relevant investment businesses. Since its establishment two decades ago, CHALIECO has won nearly **1,000** science and technology awards at provincial/ministerial level or above cumulatively, including **two** first prizes and over **20** second prizes of the State Scientific and Technological Progress Award. It has taken the lead to formulate or participated in the formulation of more than **140** national and industrial standards, as well as relevant codes, and held over **3,000** valid domestic and foreign patents. It has also set over 100 records in China and the world at large. In 2022, CHALIECO ranked **97th** and **119th** in the Engineering News-Record (ENR)'s annual rankings for the 2022 Top **150** Global Design Firms and the 2022 Top **250** International Contractors respectively.

近年来，中铝国际以在行业绝对领先的技术优势、资质优势、人才优势、全产业链优势，积极参与地方基础设施建设、棚户区改造、生态建设、环境工程、道路桥梁、城市公用事业等领域的投资、建设与开发，为构建资源节约型和环境友好型社会做出了积极贡献。

In recent years, CHALIECO, with its absolute advantages in technology, qualification, talent, and whole industry chain, has actively participated in the investment, construction and development of local infrastructure, rebuilding of rundown urban areas, ecological conservation, environmental protection, roads and bridges, and urban public utilities, making a positive contribution to the building of a resource-conserving and environmentally-friendly society.

## 企业文化

### Corporate Culture



建设世界一流的提供有色技术装备服务综合方案的解决商。

To build a world-class integrated solution provider of nonferrous metal technologies, equipment and services.

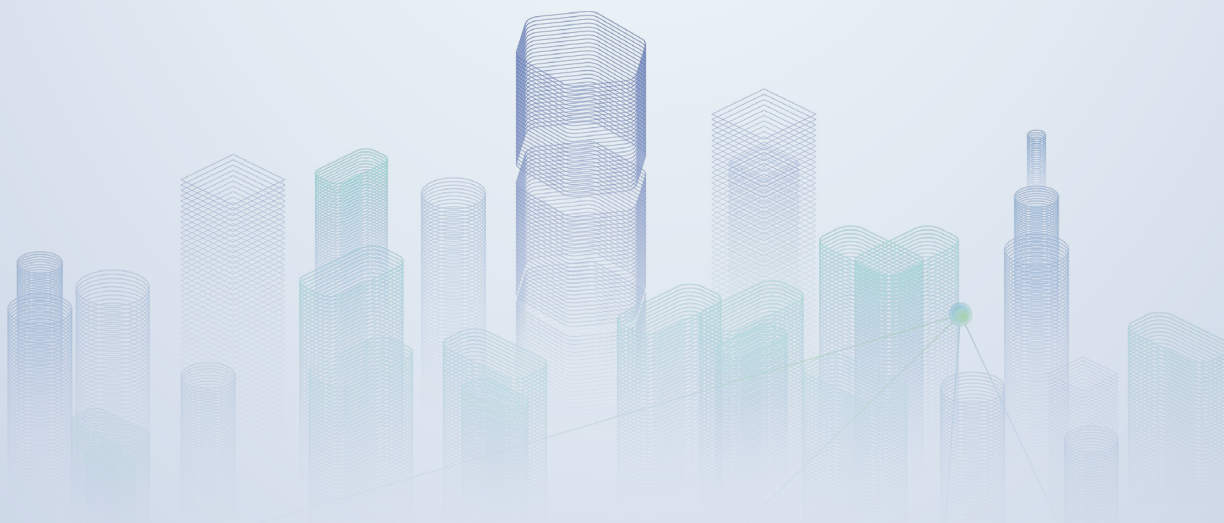


有色工业技术的引领者，有色工程建设的主力军，基础设施及民用工程建设的生力军。

To be the technology leader of nonferrous metals industry, the main force for nonferrous engineering construction, and the new force for infrastructure and civil engineering construction.

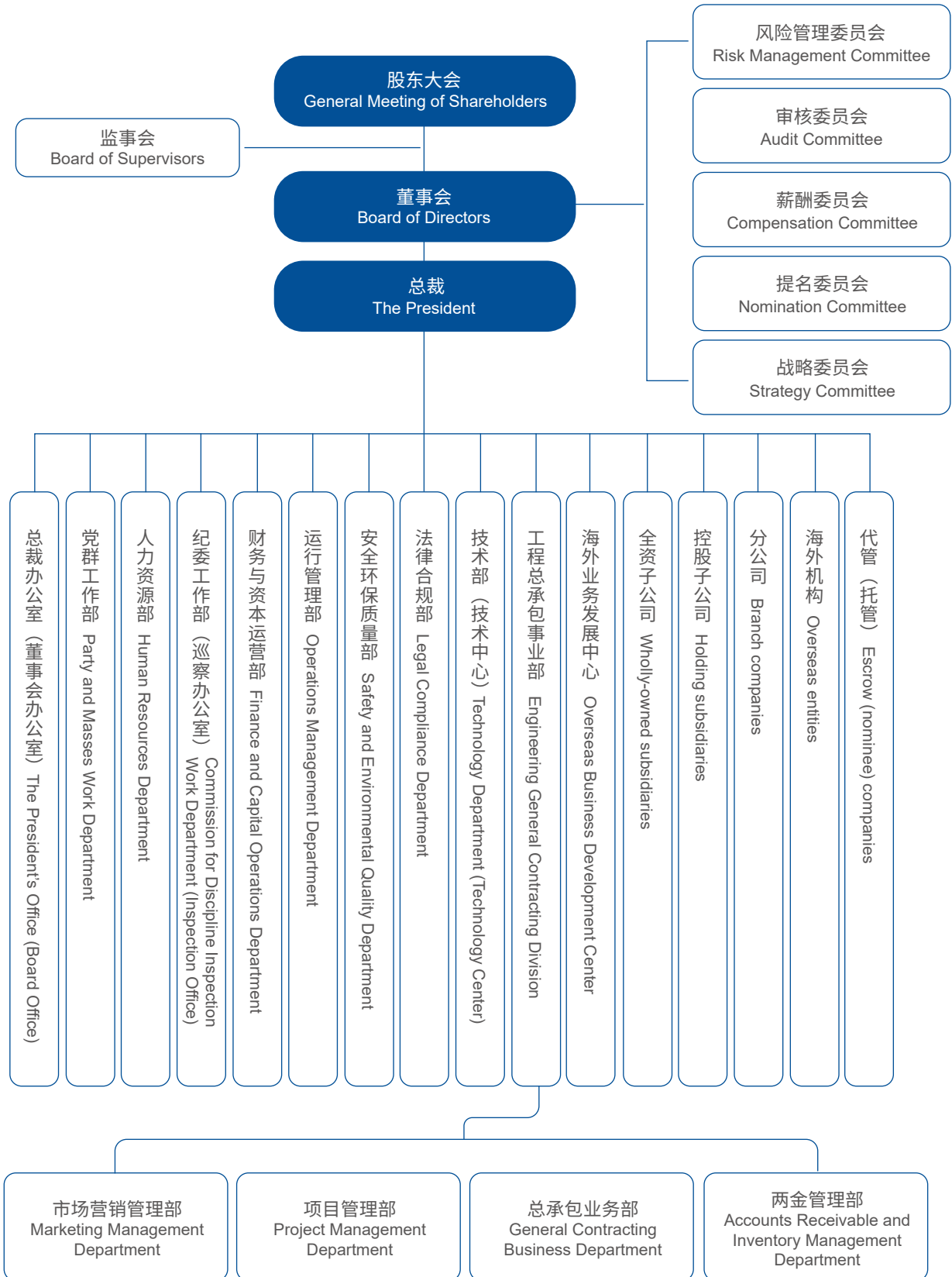


- 科技 + 国际
- S&T + Internationalization



# 组织架构

## Organizational Structure



## 主要企业

### Major Enterprises

#### 全资子公司

Wholly-owned subsidiaries

沈阳铝镁设计研究院有限公司  
Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited (SAMI)

贵阳铝镁设计研究院有限公司  
Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited (GAMI)

长沙有色冶金设计研究院有限公司  
CINF Engineering Corporation Limited

中国有色金属长沙勘察设计研究院有限公司  
China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd.

中国有色金属工业昆明勘察设计研究院有限公司  
Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd.

中国有色金属工业第六冶金建设有限公司  
China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company

中色十二冶金建设有限公司  
China Nonferrous Metal Industrial No. 12 Metallurgy Construction Company

中铝国际(天津)建设有限公司  
CHALIECO (Tianjin) Construction Co., Ltd.

中铝西南建设投资有限公司  
CHINALCO Southwest Construction Investment Co., Ltd.

中铝国际工程设备有限公司  
China Aluminum International Engineering Equipment Co., Ltd.

中铝国际技术发展有限公司  
China Aluminum International Technology Development Co., Ltd.

中铝国际铝应用工程有限公司  
CHALIECO Aluminum Application Co., Ltd.

中铝国际云南铝应用工程有限公司  
CHALIECO Yunnan Aluminum Application Engineering Co., Ltd.

#### 控股子公司

Holding subsidiaries

中色科技股份有限公司  
China Nonferrous Metals Processing Technology Co., Ltd.

昆明有色冶金设计研究院股份公司  
Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd.

九冶建设有限公司  
Jiuye Construction Co., Ltd.

中铝山东工程技术有限公司  
CHALIECO Shandong Engineering Technology Co., Ltd.





# 可持续发展管理

## Sustainable Development Management

中铝国际秉承“科技+国际”的发展战略，将可持续发展理念全面融入企业日常运营管理中，持续完善社会责任治理架构和运行机制，积极回应利益相关方要求和期待，推动实现企业和社会的多方共赢。

Insisting on the development strategy of “S&T + Internationalization,” CHALIECO has fully integrated the vision of sustainable development into day-to-day corporate operations and management, constantly improved the social responsibility governance structure and operating mechanism, and actively responded to the demands and expectations of stakeholders, striving to achieve win-win results between the enterprise and the society.

## 可持续发展行动

### Sustainable Development Actions

#### 完善制度 System improvement

完成《中铝国际工程股份有限公司社会责任管理模块及负面清单》《中铝国际工程股份有限公司社会责任工作实施细则》修订

Revised the *Social Responsibility Management Modules and Negative List of China Aluminum International Engineering Corporation Limited* and the *Implementation Rules of China Aluminum International Engineering Corporation Limited for Social Responsibility Work*

#### 参加培训 Training participation

参加集团社会责任工作培训会，强化社会责任意识

Participated in the training programs on social responsibility work organized by CHINALCO to enhance social responsibility awareness

#### 联合发布 Joint release

参与集团“2021 社会责任报告发布会”，与集团及兄弟单位联合发布社会责任报告

Participated in the 2021 Social Responsibility Report Release Conference organized by CHINALCO, released social responsibility reports together with CHINALCO and other member enterprises of CHINALCO

#### 设置专栏 Column setting

官网设置社会责任专栏，提升企业社会责任影响力

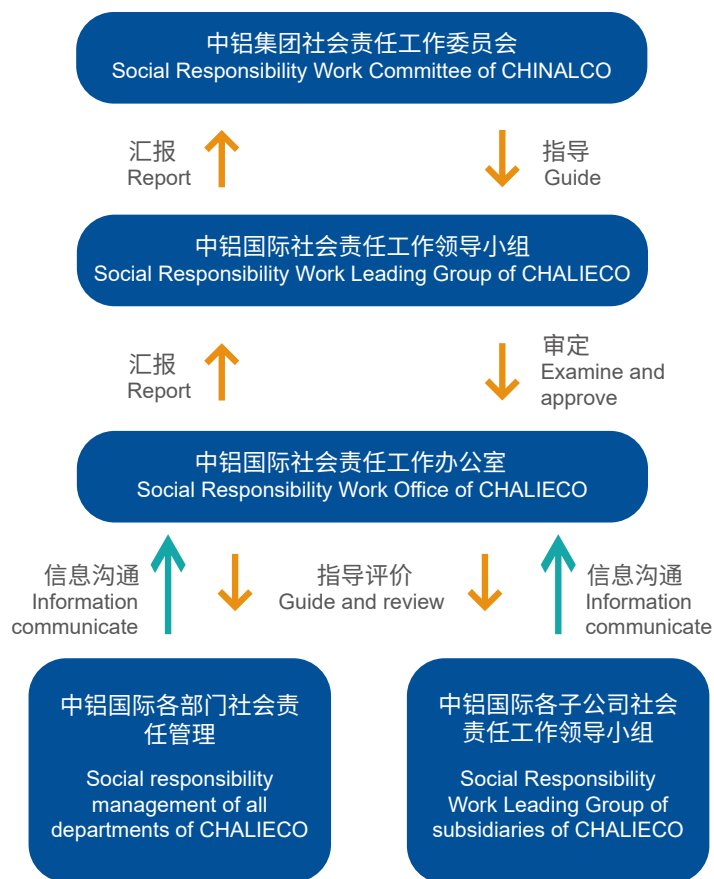
Set the “Social Responsibility” column on its official website to improve the influence of corporate social responsibility

# 组织体系

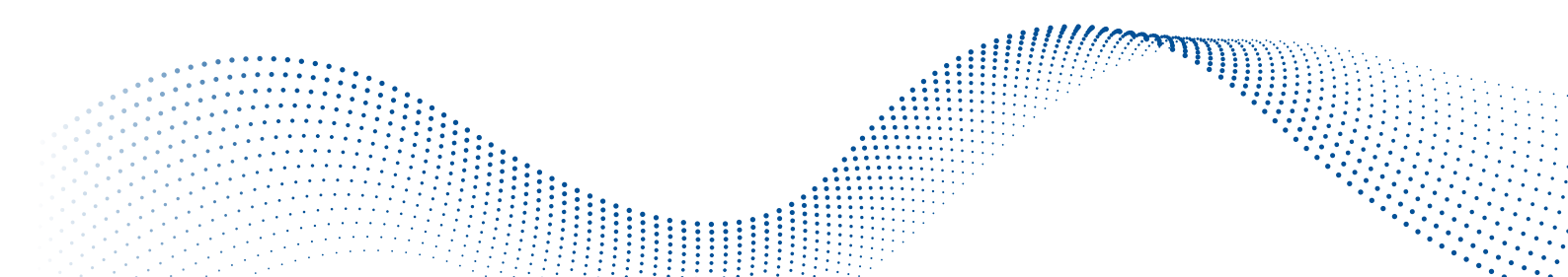
## Organizational System

公司将社会责任管理有效融入业务管理系统，成立由党委书记、董事长担任组长，总裁担任常务副组长，领导班子其他成员以及有关人员担任副组长的社会责任工作领导小组，负责向上汇报社会责任工作进展，向下传达中铝集团关于社会责任工作的指导及管理意见，统筹规划公司社会责任工作的实施。领导小组下设办公室，负责社会责任的日常工作。

CHALIECO has effectively integrated social responsibility management into the business management system, and established a leading group for social responsibility work, with the Company's Party secretary and chairman as the leader, the president as the executive deputy leader, and other members of the management and competent personnel as deputy leaders. The leading group is responsible for reporting the progress of social responsibility work of the Company to the higher level, and conveying the guiding and management opinions and suggestions of CHINALCO on social responsibility work, as well as conducting overall planning for the implementation of the Company's social responsibility work. The office of the leading group is responsible for the daily work of social responsibility.



中铝国际社会责任组织体系  
Social Responsibility Organizational System of CHALIECO



# 利益相关方沟通

## Communication with Stakeholders

中铝国际高度重视与利益相关方的沟通交流，建立起有效便捷的沟通机制和沟通渠道，积极听取不同利益相关方的声音，并就相关问题进行回应，不断提高公司透明度，提升管理运营能力。

CHALIECO has attached great importance to the communication and exchanges with stakeholders, and established efficient and convenient communication mechanisms and channels to actively listen to the opinions and suggestions of stakeholders. The issues raised by stakeholders shall be handled in a timely manner, so as to further improve the transparency of corporate operations and enhance the corporate management and operations capabilities.

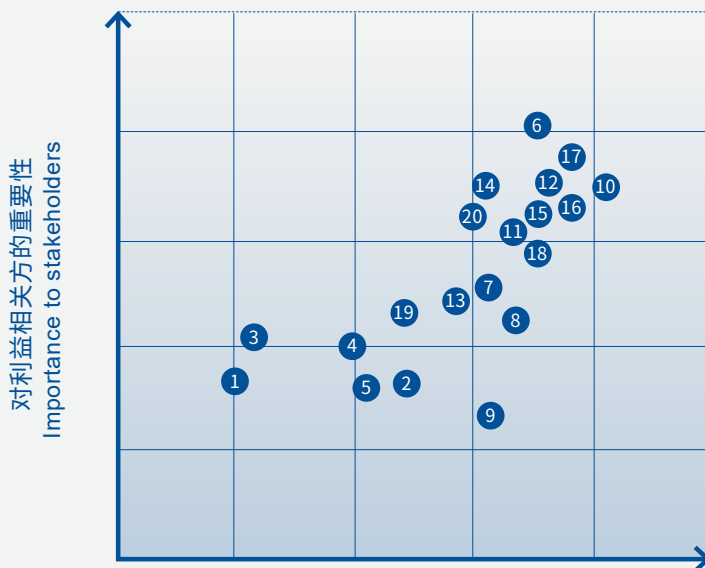


# 重大议题识别

## Material Issue Identification

为进一步提高针对性和报告披露信息的回应性，中铝国际通过分析比较不同可持续发展议题对利益相关方的影响和对本公司自身发展的重要性，识别筛选出需要在报告中重点披露的议题。

To further improve the pertinence and responsiveness of the disclosed information in the report, CHALIECO has analyzed and compared the influences of different sustainable development issues on stakeholders and their importance to corporate development. Issues that need to be highlighted in this report thus have been screened and identified.



对中铝国际可持续发展的重要性  
Importance to the sustainable development of CHALIECO

	员工 Employees		供应商与客户 Suppliers and customers		环境 Environment		社区及公众 Community and the public
<ul style="list-style-type: none"> <li>● 权益维护 Protection of rights and interests</li> <li>● 职业健康 Occupational health</li> <li>● 薪酬福利 Compensation and benefits</li> <li>● 职业发展 Career development</li> </ul>	<ul style="list-style-type: none"> <li>● 依法履约 Contract fulfillment according to the law</li> <li>● 诚信经营 Integrity operations</li> <li>● 优质产品与服务 High-quality products and services</li> </ul>	<ul style="list-style-type: none"> <li>● 合规排放 Compliance with pollutants discharge standards</li> <li>● 节能减排 Energy-saving and emission reduction</li> <li>● 保护生态 Ecological protection</li> </ul>	<ul style="list-style-type: none"> <li>● 改善社区环境 Improve community environment</li> <li>● 参与公益事业 Participate in public welfare activities</li> <li>● 信息公开透明 Disclose information in an open and transparent manner</li> </ul>				
<ul style="list-style-type: none"> <li>● 职工代表大会 Employees' congress</li> <li>● 集体协商 Collective negotiation</li> <li>● 民主沟通平台 Democratic communication platform</li> </ul>	<ul style="list-style-type: none"> <li>● 商务沟通 Business communication</li> <li>● 客户反馈 Customer feedback</li> <li>● 交流研讨 Exchanges and discussion</li> </ul>	<ul style="list-style-type: none"> <li>● 工作汇报 Work reporting</li> <li>● 报表报送 Statements reporting</li> <li>● 调研检查 Investigation and inspection</li> </ul>	<ul style="list-style-type: none"> <li>● 公司网站 Official website</li> <li>● 公司公告 Corporate bulletins</li> <li>● 采访交流 Interviews and exchanges</li> </ul>				

1	社区发展贡献 /Contribution to community development	11	项目质量管理 /Project quality management
2	水资源使用管理 /Water resource use management	12	绿色施工 /Green construction
3	知识产权保护 /Protection of intellectual property rights	13	自主创新 /Independent innovation
4	供应链管理 /Supply chain management	14	风险管理 /Risk management
5	促进行业发展 /Promote industrial development	15	反腐倡廉 /Anti-corruption and integrity upholding
6	废弃物管理 /Waste management	16	安全生产 /Work safety
7	能源使用管理 /Energy use management	17	合规合法经营 /Law-based and compliance operation
8	员工权益保障 /Protection of employees' rights and interests	18	ESG 管治 /ESG Governance
9	员工培训发展 /Employee training and development	19	乡村振兴 /Rural revitalization
10	员工健康安全 /Health and safety of employees	20	生态保护 /Ecological protection

## 企业荣誉 Awards and Honors



中铝国际蝉联 ENR 全球承包商 **250 强**

CHALIECO ranked on the list of ENR's Top 250 International Contractors successively

中铝国际上榜 2022 年  
《财富》中国 **500 强**

CHALIECO ranked on the list of 2022 Fortune China 500

中铝国际入选“2022 北京上市公司  
100 强榜单”，排名第 **81 位**

CHALIECO ranked 81st on the list of 2022 Top 100 Beijing-Based Listed Companies



中铝国际入围 2022 ENR 工程设计企  
业全球营收 **TOP100**

CHALIECO ranked on the list of ENR's 2022 Top 100 Global Design Firms

中铝国际入选“央企 ESG 治理·先  
锋 50 指数”榜单第 **32 位**

CHALIECO ranked 32nd on the list of Central State-Owned Enterprises ESG Governance – Pioneer 50 Index



中铝国际荣获 2022 ESG 金  
牛奖“**乡村振兴先锋**”

CHALIECO won the title of “Rural Revitalization Pioneer” of 2022 ESG Golden Bull Award



贵阳院设计、六冶承建的云南神火铝业有限公司 90 万吨绿色水电铝材一体化项目获**国家优质工程金奖**

Yunnan Shenhua Aluminum Industry Co., Ltd.'s 900,000 Tons/Year Hydropower and Aluminum Integration Project designed by Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited and undertaken by China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company won the gold prize of National Quality Engineering Award

六冶参建的北京环球影城主题公园项目荣获**鲁班奖**

Universal Studios Theme Park Project co-undertaken by China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company won the prize of China Construction Engineering Luban Award

九冶参建的新疆维吾尔自治区新华书店物流基地工程获**中国钢结构金奖**

Xinjiang-based Xinhua Bookstores Logistics Base Project co-undertaken by Jiuye Construction Co., Ltd. won the gold prize of China Construction Engineering Steel Structure Award



沈阳院设计的内蒙古蒙泰达拉特 90 万吨 / 年铝板带项目荣获**国家优质工程奖**

Inner Mongolia-based Mengtai Dalate 900,000 Tons/Year Aluminum Strip Project designed by Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited won the prize of National Quality Engineering Award

长沙院设计，六冶、十二冶参建的几内亚 Boffa 铝土矿项目获**国家优质工程奖**

Bauxite Mine Project in Guinea designed by CINF Engineering Corporation Limited and co-undertaken by China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company and China Nonferrous Metal Industrial No. 12 Metallurgy Construction Company won the prize of National Quality Engineering Award



# 中铝国际责任数字

## Social Responsibility Performance in Figures



Total tax payment: RMB**823.4474** million

纳税总额

**82,344.74** 万元



Number of projects winning national awards: **5** projects

项目获得国家级奖项

**5** 个



Investments in R&D: RMB**912.0662** million

研发资金投入

**91,206.62** 万元



Cumulative number of valid patents: **2,832** pieces

累计有效专利数

**2,832** 件



Number of employees participated in training programs: **28,686** person-times

员工培训

**28,686** 人次



Number of paid leave days per capita: **10.49** days

人均带薪休假

**10.49** 天







Investments in environmental protection: RMB**34.231** million

环保投入

**3,423.10** 万元



Recycling rate of industrial solid waste: **100%**

工业固体废物重复利用率

**100%**



Compliance rate of major pollutant emissions: **100%**

主要污染物排放达标率

**100%**



Investments in rural revitalization projects: RMB**2.5414** million

乡村振兴项目投入

**254.14** 万元



Total amount of charitable donations: RMB**87,000**

慈善捐赠总额

**8.7** 万元



Cumulative volunteer hours: **3,605** hours

累计志愿服务

**3,605** 小时



## 责任专题：聚焦“从 0 到 1”，培育核心技术 Responsibility Focus: Developing Core Technologies from “Zero to One”

当今世界，科技创新已经成为提高综合国力的关键支撑，成为社会生产方式和生活方式变革进步的强大引领，谁牵住了科技创新这个牛鼻子，谁走好了科技创新这步先手棋，谁就能占领先机、赢得优势。

——习近平

In today's world, innovation in science and technology has become a key support for improving overall national strength and a powerful guide for the transformation and progress of the mode of production and the way of life of the society. The leader in science and technology innovation always gets ahead of the game and wins competitive edge.

—Xi Jinping



中铝国际依托自身品牌与技术优势，聚焦“科技+国际”战略，形成科技创新新优势，在建设国内一流、全球有竞争力的有色行业工程技术公司、突破前沿核心技术的路上，打破了受制于人的局面，取得了一系列新成果，引领中国有色金属工业核心技术发展。

Through its own brands and technical strength and focusing on the “S&T + Internationalization” strategy, CHALIECO has established new advantages in science and technology innovation. On the way to building a leading domestic engineering technology company with international competitiveness in nonferrous metals industry and breaking through the barriers of cutting-edge core technologies, CHALIECO has changed the situation that the leading technologies are controlled by others and made a number of new achievements, leading the development of China's nonferrous metals industry.





## 沈阳院

**Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited**

沈阳院作为中国铝工业技术发展的开拓者和主力军，建有国家级铝工业节能环保技术工程研究中心、国家企业技术中心、博士后工作站和 6 个省部级工程技术研究中心，获得国家、省部级科技进步奖、优秀工程设计咨询奖 500 余项，拥有有效专利 550 余件，国际专利 120 余件。

As the pioneer and main force in promoting the development of China's aluminum industry technology, Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited boasts one national engineering research center of energy-saving and environmental protection technology in aluminum industry, one national enterprise technology center, one postdoctoral workstation, and six engineering technology research centers at provincial/ministerial level. The institute has won more than 500 prizes including national and provincial scientific and technological progress awards and excellent engineering design and consulting awards, and possesses over 550 valid patents and more than 120 international patents.

### 绿色低碳铝电解深度节能技术

Deep energy-saving technology for green and low-carbon aluminum electrolysis

具有节能效果显著、覆盖范围广、技术适应性强、浇铸成功率高、便于实施等特点，有利于提高电解生产的安全性和稳定性。截至 2022 年，该技术已在中铝集团、国家电投集团、土耳其 ETI 铝业等项目、多种槽型上得到了广泛应用，取得良好的经济效益与环境效益。

This technology is characterized by significant energy-saving effect, wide coverage, strong technical adaptability, high casting success rate, and easy implementation, which is conducive to improving the safety and stability of aluminum electrolysis production. By 2022, the technology has been widely used in various electrolytic cells as well as a number of projects of CHINALCO, State Power Investment Corporation Limited (SPIC), Türkiye's ETI Aluminium, and others, and achieved good economic and environmental benefits.



### 绿色低碳铝电解深度节能技术组装设备

Assembly equipment of deep energy-saving technology for green and low-carbon aluminum electrolysis



## 贵阳院

### Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited

贵阳院作为我国最具实力的轻金属冶炼设计科研单位之一，拥有国家铝镁电解装备工程技术研发中心、博士后工作站，先后研发阳极导杆自动焊接技术、炭素阳极智能堆垛机组及仓储管理系统、电解质等众多铝冶炼智能制造技术，提升我国铝冶炼技术与装备的综合实力。

As one of the most powerful light metal smelting design and research units in China, Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited has one national engineering and technology research center of aluminum and magnesium electrolysis equipment and one postdoctoral workstation. The institute boasts a number of intelligent manufacturing technology for aluminum smelting including anode guide automatic welding technology, carbon anode intelligent stacking unit and storage management system, and electrolyte, which effectively improve China's comprehensive strength of aluminum smelting technology and equipment.

#### 一站式智慧工厂整体架构设计

##### One-stop overall architecture design for smart factory

以 5G 工业专网为依托，融合 BIM、数字孪生、专家知识库、大数据挖掘分析等技术，设立 1 个可视化“工业智慧大脑”，满足电解铝生产管理精细化、过程数字化和决策智能化的要求，打造“5G+BIM+ 智慧工厂+双碳”模板，助力铝工业绿色高质量发展。

Based on 5G industrial network, this technology integrates BIM, digital twin, expert knowledge base, big data mining analysis and other technologies to set up a visualized “industrial intelligent brain” to meet the requirements of delicacy management of electrolytic aluminum production, process digitization and intelligent decision-making, creating a model of “5G + BIM + smart factory + ‘dual carbon’ goals” to help the green and high-quality development of aluminum industry.



#### 5G + 智能化工厂示范基地

##### A demonstration base of “5G + smart factory”



## 长沙院

CINF Engineering Corporation Limited

长沙院作为我国最早成立的大型综合性设计研究单位之一，拥有有效专利 400 余件，形成一批具有自主知识产权的核心技术，在矿山、冶炼和环境保护方面处于国际领先水平。

As one of the first large-scale comprehensive design and research units established in China, CINF Engineering Corporation Limited boasts over 400 valid patents, and has developed a number of core technologies with independent intellectual property rights. The company is at the international leading level in mining, smelting and environmental protection.

### 矿山固废资源化生态化梯级集成利用技术

Integrated technology for ecological and gradient utilization of solid waste in mines

主要包括原矿预先智能抛废技术、采空区高浓度低成本尾矿充填技术等关键技术，能够有效解决有价金属非金属资源浪费严重、尾矿库生态修复难度大等重大技术难题，先后在我国多座大型矿山成功应用，达到国际先进水平，获得中国有色金属工业科学技术一等奖。

This technology mainly includes intelligent pre-processing of raw ore, high-concentration and low-cost tailings filling for mining areas, and other key techniques. It can effectively solve the major technical problems such as the serious waste of valuable metal and non-metal resources and the difficulty of ecological restoration of tailings, which has been successfully applied in many large mines in China and reached the international advanced level, and won the First Prize of China Nonferrous Metals Industry Science and Technology Award.



## 昆明院

Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd.

昆明院作为全国勘察设计行业创新型优秀企业，多项技术具有国际领先、国内一流水平，获得国家级、省部级优秀工程咨询、工程设计、优质工程、科技进步、标准设计和计算机软件成果奖 340 余项，获得国家专利 70 余项。

As an innovative and outstanding enterprise in survey and design industry in China, Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd. boasts a number of leading technologies in China and the world at large. The institute has won more than 340 national and provincial awards for excellent engineering consulting, engineering design, high-quality engineering, scientific and technological progress, standard design and computer software achievements, and obtained over 70 national patents.

### 细粘粒高尾矿坝成灾机理及其溃坝灾害防控技术

Disaster formation mechanism of high fine tailing dams and dam failure prevention and control technology

探究了细粘粒高尾矿坝工程力学特性及灾变机理，建立了新的稳定性及溃后影响范围评价体系，解决了细粒径尾矿物物理力学指标较差，透水性较差，固结时间较长等问题，达到国内领先水平，先后应用于大红山铜、小团山尾矿库 (147m)、小麦地尾矿库等工程。

This technology explores the engineering mechanical characteristics and disaster mechanism of high fine tailing dams, establishes a new stability and post-failure impact range evaluation system, solves the problems of poor physical and mechanical indicators of fine tailings, poor permeability, and long consolidation time, and so on. The technology has reached the leading level in China and has been applied to several projects including Dahongshan copper mine, Xiaotuanshan tailings pond (147m), and Xiaomaidi tailings pond.





## 长勘院

China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd.

长勘院大力实施主业立院、科技兴院、开拓富院、人才强院战略，勇当中国勘察设计行业的科技开拓者，荣获国家及省部级科技进步奖和优秀工程勘察设计奖 275 项，申请专利 77 件，主编、参编国家、行业及地方规范 30 余本。

Focusing on main business, China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd. has been committed to developing cutting-edge technologies, conducting innovation and cultivating talented people, striving to be a technology pioneer in survey and design industry in China. The institute has won 275 national and provincial scientific and technological progress awards and excellent engineering survey and design awards, and applied for 77 patents. It has also taken the lead to formulate or participated in the formulation of more than 30 national, industrial and local standards and norms.

### “天空地”一体化矿山重大灾害监测与预警系统 “Space-air-ground” integrated major mine disaster monitoring and early warning system

包括“天空地”一体化矿山安全智能化监测预警、矿山无人自动安全巡检等多项核心技术，可实现全天候、全天时、全场景、全地形智能化监测与预警信息发布，广泛应用于矿山、建设工程、地质灾害的安全在线监测预警领域，对推动我国矿山重大危险源、工程与地质灾害智能化监测预警技术进步具有重要作用。

This system includes “space-air-ground” integrated mine safety intelligent monitoring and early warning, unmanned automatic safety inspection of mines, and several other core technologies. The system can realize all-weather, all-time, all-scenario and all-terrain intelligent monitoring and early warning information release. It has been widely used in the field of online safety monitoring and early warning of mines, construction projects and geological hazards, and plays an important role in promoting the progress of China’s intelligent monitoring and early warning technology for identifying major hazard sources, as well as engineering and geological hazards in mines.



### Online SAR 工程灾害智能监测雷达系统

Online SAR Engineering Disaster Intelligent Monitoring Radar System





## 昆勘院

Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd.

昆勘院作为国家高新技术产业和云南省创新型企业，围绕岩土工程一体化、矿业工程一体化、地质找矿、建筑设计、水资源与土壤污染和大数据应用六个方向持续攻关，累计完成科研项目 200 余项，共获得国家和省部级科技成果奖 25 项。

As a national new high-tech enterprise and an innovative enterprise in Yunnan Province, Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd. has continued to conduct research with the focus on six directions, that is, geotechnical engineering integration, mining engineering integration, geological prospecting, architectural design, water resources and soil pollution, and big data application. The institute has completed more than 200 scientific research projects cumulatively, and won a total of 25 national and provincial scientific and technological achievement awards.

### 高寒山区高陡边坡植被恢复关键技术

Key technology for revegetation of steep slopes in high and cold mountainous areas

包括适宜于“三高”的低成本厚层生态基材，低成本、低维护自灌溉系统，试验筛选出最合适的植物种类及群落混播配方，填补在高寒山区裸露边坡或斜坡植被恢复技术短板，已在云南迪庆普朗铜矿、攀钢西渣场等多个项目推广应用。

This technology includes the low-cost thick ecological substrate suitable for the “three highs” and the low-cost, low-maintenance self-irrigation system. The most suitable plant species and mixed sowing approach have been screened through experiments. The technology fills the gap of revegetation of barren slopes or in high and cold mountainous areas, and has been applied to several projects such as the project in Pulang copper mine in Diqing, Yunnan Province and the Pangang west slag yard project in Panzhihua, Sichuan Province.



### 高海拔高寒山区植被恢复治理技术应用

Application of the technology for revegetation of steep slopes in high and cold mountainous areas



## 中色科技

China Nonferrous Metals Processing Technology Co., Ltd.

中色科技作为国内唯一一家有色金属加工咨询设计研究型企业，围绕制约我国有色金属加工行业发展的共性技术和关键技术，积极承担重点研发任务，多项技术成果填补国内空白，为我国有色金属加工行业的技术进步和产业升级做出突出贡献。

As the only domestic consulting and design research company for nonferrous metals processing, China Nonferrous Metals Processing Technology Co., Ltd. actively undertakes key research and development tasks around the generic and key technologies that restrict the development of China's nonferrous metals processing industry. With a number of emerging scientific and technological achievements, the company has made outstanding contributions to the technological progress and industrial upgrading of China's nonferrous metals processing industry.

### 2800mm 六辊铝带冷轧机组

2800mm wide six-roller aluminum strip cold rolling mill unit

成功突破 18 项技术难题，4 项关键核心技术，填补国内在有色金属加工宽幅铝带冷轧机领域的空白，达到国际先进水平，推进有色金属加工行业重大技术装备提升，该研发成果已在国内多家大型铝加工企业应用，成功代替进口。

This unit has successfully tackled 18 technical bottlenecks and developed four key core technologies, filling the gaps in the field of domestic wide aluminum strip cold rolling mill for nonferrous metals processing. The unit has reached the international advanced level and promoted the upgrading of major technical equipment in the nonferrous metals processing industry. It has been applied in many large domestic aluminum processing enterprises, and replaced the similar imported equipment successfully.



### 2800mm 六辊铝带冷轧机组

2800mm wide six-roller aluminum strip cold rolling mill unit





## 山东工程设计院

Design Institute of China Aluminum Shandong Engineering Technology Co., Ltd

山东工程设计院作为中国最早的有色冶金工程设计单位之一，打造了氧化铝、催化剂、余热利用等优势领域，完成的多个项目荣获有色金属行业部级优秀工程咨询成果奖、有色金属行业部级优秀工程设计奖、中国有色金属工业优质工程。

As one of the earliest nonferrous metallurgical engineering design units in China, Design Institute of China Aluminum Shandong Engineering Technology Co., Ltd has built up competitive advantages in such fields as alumina, catalysts and waste heat utilization. A number of projects undertaken by the company have won the ministerial-level excellent engineering consulting achievement awards, the ministerial-level excellent engineering design awards, as well as quality project awards in nonferrous metals industry.

### 精细化氧化铝两段式焙烧系统

Two-stage roasting system for refined alumina

融合热能梯度分级利用、多级悬浮预热、综合热能回收等多项创新煅烧与节能环保技术，节能效果显著，满足多种工况的使用；通过建立数学模型进行精准控制，实现智能化无人值守。

This system integrates staged utilization of heat, multi-stage suspension preheating, comprehensive heat recovery and several other innovative roasting, energy-saving and environmental protection technologies. With remarkable energy-saving effect, the system meets the use of a variety of working conditions. The system is also precisely controlled by establishing mathematical models to achieve intelligent unmanned operation.



### 精细化氧化铝两段式焙烧系统

Two-stage roasting system for refined alumina

# 01

## 经济责任

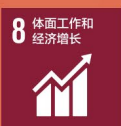
### ECONOMIC RESPONSIBILITY

#### 固本筑基, 让发展致远

##### Building Foundation for Sustainable Development

中铝国际深入推进企业治理体系和治理能力现代化建设, 持续加强董事会建设; 推动全面深化改革走深走实、圆满收官; 不断完善合规管理, 强化内部控制, 提升风险防控水平; 不断加强党的建设, 筑牢反腐倡廉防线, 为实现公司内涵式高质量发展奠定坚实基础。

We have been promoting the modernization of the system and capacity for corporate governance with Chinese characteristics and continuously strengthening the construction of the board of directors. We have carried out deeper and more concrete reform in an all-around manner and achieved successful results. We have continuously enhanced compliance management and internal control to improve the risk prevention and control. We have constantly strengthened Party building and built a strong line of defense to fight against corruption and uphold integrity, laying a solid foundation for sustainable and high-quality development.









## 公司治理 Corporate Governance

中铝国际严格遵守《中华人民共和国公司法》《上市公司治理准则》等相关法律法规，不断完善治理体系。作为两地上市的上市公司，中铝国际同时严格遵守《上海证券交易所股票上市规则》《香港联合交易所有限公司证券上市规则》等证券监管要求。

We strictly abide by the *Company Law of the People's Republic of China*, the *Code of Corporate Governance for Listed Companies* and other relevant laws and regulations, and have been continuously improving the governance system. As a company listed on both Hong Kong and Shanghai stock exchanges, CHALIECO follows the *Rules Governing the Listing of Stocks on Shanghai Stock Exchange*, the *Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited* and other securities regulatory requirements in a strict manner.

## 完善治理架构 Improving Governance Structure

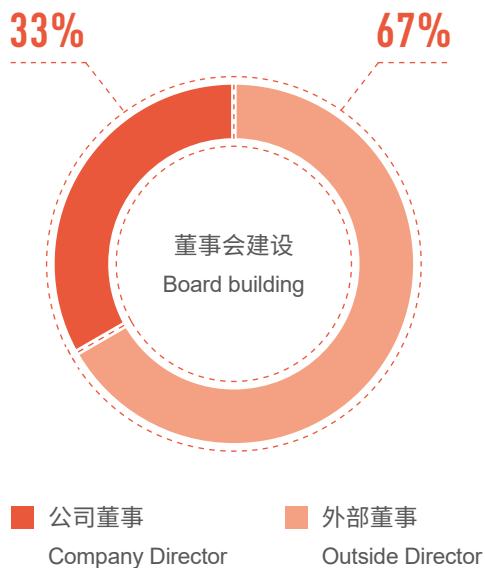
中铝国际设立了股东大会、董事会、监事会，持续重视完善治理架构和各项治理制度，致力于凭借高水平的企业治理能力有效领导中铝国际高质量发展，保障股东权益，以良好业绩回报社会。

We have established the general meeting of shareholders, board of directors and board of supervisors, and constantly focused on improving governance structure and various governance systems. With higher capacity for corporate governance, we have been committed to effectively promoting high-quality development of CHALIECO, guaranteeing the rights and interests of shareholders, and contributing to the society with good performance.

## 强化董事会建设 Advancing Board Construction

公司制定了《董事会成员多元化政策》，明确董事会成员设定综合考虑因素，多渠道引入国企人员、专家学者、民企高管担任公司外部董事，确保董事会成员多元化。截至 2022 年 12 月 31 日，公司董事会由 9 名成员组成，其中执行董事 3 名，非执行董事 3 名，独立非执行董事 3 名，外部董事占比约为 67%。

We have formulated the *Diversity Policy for Board Members*, which clarifies the comprehensive considerations for the composition of board members and requires introducing personnel of state-owned enterprises, experts and scholars, and executives of private enterprises as outside directors of CHALIECO through multiple channels to ensure the diversity of board members. As of December 31, 2022, the board of directors of CHALIECO consisted of nine members, including three executive directors, three non-executive directors, and three independent non-executive directors; the proportion of outside directors was 67 percent.



公司独立董事严格按照《中铝国际工程股份有限公司独立董事工作制度》等有关规定，履行独立董事法定职权，积极参与董事会决策，提升公司专业化运作水平，切实维护股东利益和中小股东合法权益。2022年，中铝国际共召开12次董事会会议，审议96项议案。报告期内，公司董事会秘书荣获中国上市公司协会2022年度履职4A评价，董事会办公室荣获中国上市公司协会“2022上市公司董办优秀实践”奖。

In strict accordance with the *Work System of Independent Directors of China Aluminum International Engineering Corporation Limited* and other relevant requirements, the independent directors of CHALIECO perform their statutory duties, actively participate in the decision-making of the board of directors, enhance the professional operation of the Company, and effectively safeguard the interests of shareholders and the legitimate rights and interests of minority shareholders. In 2022, CHALIECO held 12 board meetings in total and deliberated 96 proposals. During the reporting period, the board secretary of CHALIECO was awarded the 4A honor in 2022 performance evaluation by China Association for Public Companies (CAPCO) and the Board Office was granted the 2022 Award for Outstanding Practice by CAPCO.

2022年，中铝国际共召开

**12**次

董事会会议

In 2022, CHALIECO held **12** board meetings in total

2022年，中铝国际共审议

**96**项

审议议案

In 2022, the board deliberated **96** proposals

## 投资者关系管理 Investor Relations Management

公司积极做好投资者关系维护，不断创新拓展投资者沟通渠道，通过召开股东大会、定期发布公告等形式，及时回应投资者诉求，加深投资者对公司的了解和认同，增强信息透明度。2022年，公司严格按照相关制度加强信息披露管理，未发生信息披露违规行为。

We have taken initiative to maintain the investor relations, constantly conducted innovation in investor communication channel, and responded to the demands and pursuits of investors in a time manner through holding general meeting of shareholders, releasing regular announcements, and other approaches, so as to deepen investors' understanding and recognition of the Company and enhance information transparency. In 2022, CHALIECO strengthened its information disclosure management in strict accordance with relevant rules and regulations and there were no information disclosure violations occurred.



# 改革收官

## Completion of the Reform

2022 年是国企改革三年行动收官之年，中铝国际认真落实各项部署要求，持续加强组织引导、强化责任落实、紧密跟踪督促，确保改革三年行动各项工作推动有力、有序落实、发挥效用。2022 年底，公司国企改革三年行动全面高质量完成。

The year 2022 was the concluding year of the three-year action plan for SOE reform. During the year, CHALIECO earnestly implemented various plans and requirements, continuously enhanced organizational guidance, strengthened responsibility performance, and paid close attention to follow-up supervision, guaranteeing the vigorous, orderly and effective implementation of all tasks of the three-year action plan for SOE reform. At the end of 2022, the reform was completed in all aspects in a high-quality manner.

### 中铝国际改革收官重点工作：

#### CHALIECO's key tasks for the completion stage of the reform:

完善中国特色现代化企业治理体系和制度，规范各级次企业公司治理，提升各级次企业董事会治理效能，实现董事会应建尽建，外部董事占多数，建立职责法定、权责透明、协调运转、有效制衡的公司治理机制。

Refined modern corporate governance systems and mechanisms; regulated corporate governance of enterprises at all levels; improved governance effectiveness of the board of directors of enterprises at all levels; realized the establishment of the board of directors, as needed, and ensured outside directors to hold the majority; established a corporate governance mechanism in which one will do their part in accordance with statutory functions and duties while cooperating with others to have effective checks and balances.

深入推进“三项制度”改革，大力推进全级次企业任期制和契约化管理，制定了各企业经理层成员绩效考核、薪酬管理办法，持续推进人员压减和结构优化。

Promoted the “three systems” reform in a deep-going way, vigorously advanced the tenure system and contract-based management of the management personnel of enterprises at all levels; formulated performance appraisal and compensation management methods for the management personnel of enterprises at all levels; continuously advanced personnel reduction and structural optimization.



对全级次“两非”<sup>1</sup>、低效资产、低效参股等进行排查，“两非”治理成效显著。

Conducted inspection on the “Two Nons,” inefficient assets and inefficient equity participation, and achieved remarkable results in treating the “Two Nons”.

高质量推动长沙院、中色科技和昆明院的“科改示范行动”改革。

Promoted the demonstration action for scientific and technological reform of CINF Engineering Corporation Limited, China Nonferrous Metals Processing Technology Co., Ltd., and Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd.

<sup>1</sup> “两非”是指非主业、非优势业务。

“Two Nons” refers to non-main business and non-dominant business.

# 合规管理

## Compliance Management

中铝国际恪守诚信经营、公平竞争的商业道德和准则，围绕公司改革发展总体目标，强化企业合规管理工作有序开展，形成高效的法律合规工作管控体系，构建良好的企业合规管理文化氛围，进一步推动企业可持续发展。

We strictly abide by the business ethics and norms of honest operation and fair competition. Focusing on the overall goal of corporate reform and development, we have strengthened compliance management, established an efficient legal compliance work control system, and developed a good corporate compliance management culture, further promoting the sustainable development of CHALIECO.

### 合规管理举措

#### Compliance management measures

初步建立公司合规管理大格局，完成国资委和集团部署的“合规管理强化年”目标；

Preliminarily established an effective compliance management pattern and completed the goals of the “Year of Strengthening Compliance Management” arranged by the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council and CHINALCO.

设计并搭建合规管理组织体系，围绕全周期合规风险管理流程建立健全企业合规运行机制，确保流程管控到位；

Designed and developed an organizational system for compliance management; established and improved corporate compliance operating mechanisms with focus on full cycle compliance risk management process to ensure effective process management and control.

通过规章制度汇编、“立、改、废”工作计划、岗位应知应会清单等实现规章制度清单化管理；

Realized list-based management through the formulation of rules and regulations; added, refined and improved, and adjusted the items prescribed in the rules and regulations; required personnel to know and grasp the post-based knowledge and skills.

创新开展应知应会规章制度培训测评考试，培育企业特色合规文化，调动员工积极性与主动性。

Conducted post-based knowledge and skills training as well as examination and evaluation in an innovative manner; created a compliance culture with CHALIECO's characteristics to mobilize the initiative and enthusiasm of employees.



**案例**  
Case**开展培训考评，培育合规文化**

CHALIECO conducts training examination of rules and regulations,  
cultivates compliance culture

8月，中铝国际组织开展应知应会规章制度培训测评，此次培训围绕股权投资、资金管理、安全环保、法律管理、风险防控等现行有效的规章制度展开，有效提升了经营管理人员合规经营的意识和能力。

In August, CHALIECO carried out training on rules and regulations as well as examination and evaluation for employees. Focusing on the current rules and regulations in force in the fields of, among others, equity investment, fund management, safety and environmental protection, legal management, and risk prevention and control, the program effectively improved the consciousness and capability of management personnel in terms of compliance operations.



中铝国际组织经营管理人员参与应知应会规章制度培训考评

CHALIECO organized its management personnel to participate in the training examination of rules and regulations

# 风险防范

## Risk Prevention and Control

中铝国际实行以风险管理为导向的内部控制体系，持续完善全面风险管控机制，印发《中铝国际工程股份有限公司全面风险管理实施细则》，进一步完善公司全面风险管理体系；建立公司内控评价体系，印发《中铝国际工程股份有限公司内部控制评价实施细则》，规范完善内控评价工作流程及具体内容；通过主题培训和学习交流等方式，提升员工的风险意识与防范能力，全面保障公司健康平稳运行。报告期内，公司未发生重大风险事件。

We have implemented the risk management-oriented internal control system and constantly refined the total risk management and control mechanism. The *Implementation Rules of China Aluminum International Engineering Corporation Limited for Total Risk Management* has been released to further improve the Company's total risk management system. We have established an internal control evaluation system and released the *Implementation Rules of China Aluminum International Engineering Corporation Limited for Internal Control Evaluation*, aiming to regulate and improve the internal control work process and specific contents. Through special-topic trainings and the learning and exchanges activities, we have enhanced the risk consciousness and risk prevention capability of employees, so as to comprehensively guarantee the healthy and steady corporate operations. During the reporting period, there were no major risk events occurred in the Company.

### 风险防控措施

#### Risk prevention and control measures

定期组织开展年度风险评估工作，全面总结分析风险管控成效，梳理重要风险事项；  
Conducted annual risk assessment work regularly; summarized and analyzed risk management and control effect in an all-around manner and sorted out major risk items.

每月编制风险管理监控报告和监控表，从风险描述、应对措施、风险管控措施、管控成效、风险变化趋势、风险管控建议六方面系统梳理重大风险管控情况，实现有效控制；

Prepared monthly risk management monitoring reports and forms; systematically and comprehensively sorted out major risk management and control from six aspects of risk description, countermeasures, risk management and control measures, management and control effect, risk change trend, and suggestions on risk management and control to effectively control risks.

组织各单位及项目部开展境外项目（企业）风险排查，发现风险隐患，制定防控措施，形成风险防控方案。

Organized all units and project departments to conduct risk inspection on overseas projects (enterprises); prevention and control measures as well as risk prevent and control plans were developed to deal with the hidden risks.

# 党的建设

## Party Building

中铝国际坚持以习近平新时代中国特色社会主义思想为指导，将坚持和加强党的全面领导写入公司章程，落实各级责任，在集团党组和公司党委的领导下，深化党史学习教育成果，党建与业务工作“双向融合”提档升级，切实发挥各级党组织重要作用。

We, under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, have upheld and strengthened the Party's overall leadership and integrated this principle into the articles of association of the Company. Responsibilities have been effectively implemented at all levels. Under the leadership of the leading Party group of CHINALCO and the Party committee of CHALIECO, we have deepened the achievements of the campaign on Party history learning and education, enhanced the in-depth integration of Party building and business development, and effectively given full play to the important role of Party organizations at all levels.



中铝国际党委班子召开专题民主生活会

Party committee members of CHALIECO held a special topic democratic life meeting

贯彻二十大精神  
Implementing the  
spirit of the 20th  
National Congress  
of the CPC

开展“喜迎二十大，踔厉奋发、勇立新功”主题活动，并组织“喜迎二十大”摄影及书画作品评比等活动；开展了“八个一”活动，认真学习贯彻党的二十大精神。

Conducted the activity themed celebrating the 20th National Congress of the CPC and making new achievements with intensified efforts; organized photography and calligraphy works contests to celebrate the 20th National Congress of the CPC; carried out the “Eight Ones” campaign, and earnestly studied and implemented the spirit of the 20th National Congress of the CPC.



强化政治引领  
Strengthening  
political guidance

修订党委前置审议事项清单，组织开展党委中心组学习质量提升专项行动。

Revised the list of items to be pre-deliberated; organized the central group of the Party committee to participate in the special action to improve learning quality.

厚植党建文化  
Enhancing Party  
building culture

组织撰写《中铝国际 2022 年形势任务教育提纲》并测评，宣贯理念；宣贯“科技+国际”等经营理念和要求，统一全员认识；组织开展党史知识竞赛、党员先锋岗等“党建+”活动，营造学习氛围。

Organized relevant personnel to prepare the *Outline of China Aluminum International Engineering Corporation Limited for 2022 Situation and Task Education*, and conducted learning assessment activity to further promote the publicity and implementation of the outline; publicized and implemented the “S&T + Internationalization” strategy, as well as other operating ideas and requirements to reach a common understanding company-wide; organized “Party Building+” activities such as Party history knowledge contest and Party member pioneer post to create a good learning atmosphere.



### 组织结对共建

Conducting joint  
Party building

印发《关于开展党组织结对共建工作的指导意见》，开展党组织共建和“共学共促”活动，9家企业党委与业主、上级党组织结对共建，有效促进了各项工作开展。

Released the *Guiding Opinions on Carrying out Joint Party Building of Paired Party Organizations*; conducted joint Party building and “mutual learning and promotion” activities. The Party committees of nine enterprises of CHALIECO conducted joint Party building activities with project owners or their higher-level Party organizations, which effectively facilitated the implementation of various work programs.

### 加大外宣力度

Stepping up  
efforts on publicity

在国家级主流媒体刊稿 15 篇，中国有色金属报等省部级媒体刊稿 198 篇、中铝报 168 篇、今日中铝刊发 31 篇，树立了中铝国际的良好形象。

Published 15 articles on the national-level mainstream media; published 198 articles on provincial/ministerial-level media outlets such as *China Nonferrous Metals News*; published 168 articles and 31 articles on CHINALCO News and the official WeChat account CHINALCO-NEWS respectively. Those efforts set up a good image of CHALIECO.



# 反腐倡廉

## Anti-Corruption and Integrity Upholding

中铝国际保持高压态势，强化对权力运行的监督制约，并持续加强廉洁教育，深入开展廉洁文化学习、扎实推进“反腐倡廉宣传教育月”等各项活动，筑牢廉洁自律防线，营造风清气正的企业风气。2022 年，中铝国际共讲授 216 次廉洁教育课，3,539 人次接受廉洁教育，13 家成员企业的 7,336 名干部员工参与了网络廉洁竞赛答题。

We have maintained high pressure on corruption and enhanced the supervision on the exercise of power. We have continuously strengthened integrity education, carried out integrity culture learning activities and effectively implemented the campaign of “Publicity and Education Month for Anti-Corruption and Integrity Upholding,” so as to lay a solid foundation for the line of defense of integrity and self-discipline. In 2022, CHALIECO organized 216 education lectures themed integrity; a total of 3,539 person-times of participants received integrity education, and 7,336 cadres and workers from 13 member enterprises participated in the online integrity contest.



中铝国际共讲授廉洁教育课

**216** 次

CHALIECO organized **216** education lectures themed integrity



接受廉洁教育

**3,539** 人次

a total of **3,539** person-times of participants received integrity education



参与网络廉洁竞赛答题

**7,336** 名

**7,336** cadres and workers answered questions in the online integrity competition

完善制度建设  
Developing and  
improving systems

立足规范权力运行，组织梳理生效制度 223 个，把制度建设作为落实党委主体责任的重要措施；

Regulated exercise of power, sorted out 223 effectively systems, and took the improvement of relevant systems as an important approach to implement the primary responsibility of the Party committee.e.

重视廉洁教育  
Paying attention to  
integrity education

组织开展廉洁文化学习、廉洁党课专题教育、新任干部廉洁谈话、以案促改警示教育等各类廉洁教育活动，增强拒腐防变能力；

Carried out integrity culture learning activities, integrity education themed Party lectures, integrity talks with newly appointed cadres, and warning education activities, which use cases to promote corrections; those efforts enhanced their resistance to corruption and moral decline.



加强廉政监督  
Enhancing clean management supervision

持续推进“大监督”工作体系和机制，每个季度召开“大监督”工作委员会会议，推动日常监督融入公司生产经营；

Continuously improved the “greater supervision” work systems and mechanisms; held the “greater supervision” work committee conference quarterly; promoted the day-to-day supervision into corporate production and operations.

严格廉政考核  
Strictly conducting clean management evaluation

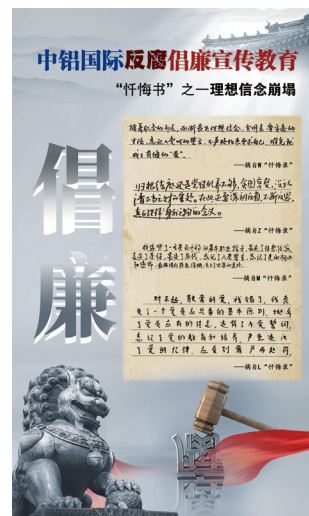
制定党风廉政建设考核方案，明确责任清单，组织对成员企业、党支部党风廉政建设进行考核；主动接受集团巡视组巡视，配合上级审计，全力推进整改工作。

Formulated an evaluation plan for improving Party conduct and upholding integrity, clarified the list of responsibilities, and conducted evaluation on member enterprises and Party branches in terms of Party conduct and clean management; took the initiative to accept the inspection by the inspection group of CHINALCO, and to cooperate with the higher authorities to conduct audit work; all issues identified during the inspection and the audit were rectified in an all-around manner.



中铝国际 2022 年以案促改警示教育大会

CHALIECO held 2022 warning education conference, using cases to promote corrections



中铝国际开展系列廉洁教育主题活动

CHALIECO conducted a series of integrity education themed activities



# 02

## 客户责任

### RESPONSIBILITY FOR CUSTOMERS

#### 科技赋能, 让品质精益求精

Improving Quality with Science and Technology Empowerment

中铝国际紧密围绕“科技+国际”的发展战略, 强化创新驱动高质量内涵式发展, 努力实现高水平科技自立自强; 依靠匠心建造、精益管理, 不断为客户奉献精品工程, 提供支撑社会经济发展、惠及民生的高品质产品与服务, 让发展充满动力, 让品质添彩生活。

Closely focusing on the development strategy of “S&T + Internationalization,” we have enhanced innovation-driven high-quality and sustainable development and strived to realize high-level scientific and technological self-reliance and self-improvement. With craftsmanship spirit and lean management, we have continued to build high-quality projects for customers, and provided high-quality products and services that support social and economic development and benefit people's livelihood. Those efforts have given momentum to development and created a better community.



9 产业、创新和基础设施



12 负责任消费和生产







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1101



## 技术创新

# Innovation in Science and Technology

中铝国际从体制机制创新、人才激励培养、科技创新成果、数字信息化等方面全面实施创新驱动发展战略，致力打造原创技术策源地，为建设国内一流、全球有核心竞争力的有色金属工程技术公司提供强大动力。2022 年，中铝国际研发投入 91,206.62 万元。

We have implemented the innovation-driven development strategy from the aspects of, among others, innovation in system and mechanism, talent motivation and cultivation, scientific and technological innovation achievements, and digital informatization. We have been committed to building a source of original technologies and striving to turn CHALIECO into a leading domestic engineering technology company with core international competitiveness in nonferrous metals industry. In 2022, the investments in R&D of CHALIECO reached RMB912.0662 million.

研发投入

**91,206.62** 万元

the investments in R&D of CHALIECO reached RMB**912.0662** million



## 推进创新管理

### Innovation Management

中铝国际制定并发布了“十四五”科技发展专项规划，建立健全《中铝国际科技重大专项管理办法》《中铝国际科技创新奖励暂行办法》《中铝国际技术转让与许可管理办法》等管理制度；构建三级次研发项目管控体系和重点项目巡查机制；推进创新研发平台建设，为建设创新型企业提供坚实保障。

We have formulated and released the special plan for development of science and technology during the 14th Five-Year Plan period, and formulated and improved the *Administrative Measures of China Aluminum International Engineering Corporation Limited on Science and Technology Major Projects*, the *Interim Measures of China Aluminum International Engineering Corporation Limited for the Reward of Innovation in Science and Technology*, the *Administrative Measures of China Aluminum International Engineering Corporation Limited on Technology Transfer and Licensing*, as well as other rules and regulations. We have built a three-level R&D project management and control system and inspection mechanisms for key projects, and promoted the construction of a R&D platform for innovation to provide a strong support for the building of an innovation-oriented enterprise.

截至 2022 年底，公司已建成：

As of the end of 2022, CHALIECO had established:

- **2** 个国家级工程技术研究中心  
Two national engineering technology research centers
- **7** 个国家企业技术中心  
Seven national enterprise technology centers
- **4** 个国家企业博士后科研工作站  
Four national enterprise postdoctoral research stations
- **22** 个省级工程技术中心  
22 provincial engineering technology centers
- **2** 个省级博士后创新实践基地  
Two provincial postdoctoral innovation practice bases
- **1** 个省级工程实验室  
One provincial engineering laboratory

## 创新平台取得新突破

### New breakthroughs achieved by innovation platforms

- 长沙院被工信部评为“国家技术创新示范企业”，为 2022 年全国唯一获此殊荣的设计研究单位；

CINF Engineering Corporation Limited was recognized as a National Technological Innovation Demonstration Enterprise by the Ministry of Industry and Information Technology (MIIT); it was the only design and research institute in China to win this award in 2022.

- 沈阳院、长沙院和昆勘院的 3 个国家企业技术中心获批建立；

Three national enterprise technology center of Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited, CINF Engineering Corporation Limited, and Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd. were approved for establishment.

- 沈阳院和昆勘院的 2 个国家级博士后科研工作站正式获批建立；

Two national enterprise postdoctoral research stations of Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited and Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd. were formally approved for establishment.

- 中色科技筹建的“河南省博士后创新实践基地”“有色金属加工工业互联网平台”和“洛阳市有色金属加工先进工艺和高端装备产业研究院”获批；

The Henan Provincial Postdoctoral Innovation Practice Base, the Nonferrous Metals Processing Industrial Internet Platform, and the Luoyang Nonferrous Metals Processing Advanced Technology and High-End Equipment Industry Research Institute of China Nonferrous Metals Processing Technology Co., Ltd. were approved for establishment.

- 山东工程筹建的“山东省省级企业技术中心”获批，依托生产企业合作建成了铝冶炼、重金属固废资源化利用和有色金属加工装备 3 个科研试验基地。

The Shandong Provincial Enterprise Technology Center of China Aluminum Shandong Engineering Technology Co., Ltd. was approved for establishment; cooperating with production enterprises, it also established three scientific research and experimental bases for aluminum smelting, heavy metals solid waste resource utilization, and nonferrous metals processing equipment.

## 创新人才培养 Innovative Talent Cultivation

中铝国际牢固树立“人才是第一资源”优势，着力打造中铝国际高端人才基地，制定《科技人才薪酬激励实施指导意见》；建立青马工程人才库，提高核心科技人才的薪酬待遇；构建以中铝首席工程师、行业大师、“三级次”科技骨干人才为主要力量的科技创新人才梯队。2022 年，推选首席科学家 1 人、首席工程师 23 人、入选“钻石计划” 11 人、“明星计划” 35 人。

We have firmly established the concept of “Talented personnel are the primary resources,” focused on building a high-caliber talent base, and formulated the *Guiding Opinions on the Implementation of Remuneration Incentives for Scientific and Technological Personnel*. We have developed a talent pool for the Training Project for Young Marxists and taken various measures to improve the remuneration and benefits of employees. A well-structured scientific and technological talent team consisting of chief engineers, industry masters and “three-level” backbone scientific and technological personnel has been established. In 2022, CHALIECO elected one chief scientist and 23 chief engineers; in addition, 11 people were elected for the Diamond Project and 35 for the Star Project.



入选“钻石计划”

11 人

11 people were elected for the Diamond Project



入选“明星计划”

35 人

35 for the Star Project



### 激励人才，中铝国际召开科技创新大会 CHALIECO holds scientific and technological innovation conference to motivate talented people

4 月，中铝国际召开科技创新大会，总结近 5 年科技工作成绩，对 13 项重大科技成果技术团队进行表彰，宣布公司首批 98 名科技骨干人才名单，对新发展阶段科技创新工作作出部署，提高人才积极性，稳定人才队伍。

In April, CHALIECO held the scientific and technological innovation conference, which summarized the scientific and technological achievements in the past five years, commended 13 major scientific and technological achievements and their teams, announced the list of the first batch of 98 backbone scientific and technological personnel of the Company, and made plans for scientific and technological innovation in the new stage of development. The conference improved the motivation of talented people and stabilized the talent team.



中铝国际科技创新大会

The scientific and technological innovation conference held by CHALIECO



### 案例 Case

提升数智赋能，公司举办“中铝国际杯”职业技能大赛  
CHALIECO holds CHALIECO Cup occupational skills contest to  
enhance digital and intelligent empowerment

8月，“中铝国际杯”第二届工程技术职业技能大赛在贵阳顺利举办，比赛分为三维数字建模和项目管理业务技能两大评选模块。此次大赛的成功举办，为中铝国际深入贯彻落实“科技+国际”发展战略，加快提升数智化水平蓄力赋能。

In August, the Second “CHALIECO Cup” Engineering Technology Occupational Skills Competition was successfully held in Guiyang, capital city of southwest China’s Guizhou Province. The competition included two major evaluation modules of 3D digital modeling and project management skills. The successful holding of this competition facilitated CHALIECO to implement the development strategy of “S&T + Internationalization” and improved digital and intelligent empowerment of employees.



“中铝国际杯”第二届工程技术职业技能大赛现场

Second “CHALIECO Cup” Engineering Technology Occupational Skills Competition

## 科技创新成果

### Scientific and Technological Innovation Achievements

中铝国际以国家高新技术企业认定为契机，聚焦主业的“八大领域、五大方向”组织实施科研立项攻关，优先发展一批能解决行业难题的关键核心技术，不断促进技术成果的转化，全力打造中铝国际技术品牌。2022年，中铝国际15项成果达到国际先进以上水平，22项技术成果获得省部级科技奖，连续5届荣获中国专利奖。

Taking the certification of national new and high-tech enterprises as the opportunity, we have focused on the “eight major fields and five major directions” of main business to organize and implement scientific research projects, prioritize the development of a number of key core technologies that can solve industry challenges, and continuously promote the transformation of scientific and technological achievements, striving to create the technology brands of CHALIECO. In 2022, a total of 15 achievements made by CHALIECO reached the international advanced level, and 22 scientific and technological achievements won the provincial/ministerial science and technology awards. CHALIECO has won the China Patent Award for five years in a row.

#### 2022年中铝国际 CHALIECO in 2022

成果达到国际先进以上水平

**15** 项

a total of **15** achievements made by CHALIECO reached the international advanced level.

技术成果获得省部级科技奖

**22** 项

**22** scientific and technological achievements won the provincial/ministerial science and technology awards.

连续荣获中国专利奖

**5** 届

CHALIECO has won the China Patent Award for **5** years in a row.

## 2022 年，公司多项科研项目取得重大成果：

In 2022, CHALIECO achieved major results in a number of scientific research projects:



### 均流稳燃智能罐式炉关键技术

Key technology of intelligent tank furnace with constant flow and steady combustion

突破罐式炉挥发份分配不均关键技术难点和智能化控温的技术瓶颈，满足具有严重非线性、耦合性、时变性的复杂工艺控制要求，首次实现罐式炉智能化控温工艺，获国家授权专利 6 件。

This technology breaks through the key technical difficulties of uneven distribution of volatiles in tank furnaces and the technical bottleneck of intelligent temperature control to meet the complex process control requirements with serious nonlinearity, coupling and time variability, and achieves the first intelligent temperature control process for tank furnaces; it obtained six national patents.



### 铝冶炼数字化交付与智能运维一体化集成平台

Integrated platform for digital delivery and intelligent operation and maintenance of aluminum smelting

降低建造成本、提升质量、提高产能、降低能耗，打造铝冶炼行业智能工厂建设新生态，获得国家授权专利 11 项。

This technology reduces construction costs, improves quality, increases production capacity and cuts energy consumption, creating a new ecosystem of smart factory construction in the aluminum smelting industry; it obtained 11 national patents.



### 阳极炭块仓储与转运无人化关键技术

Unmanned technology for anode carbon block storage and transfer

实现阳极炭块转运工序的无人化作业、炭块出入库和库存信息的精准管理和过程信息追溯，促进电解铝企业的智能化生产，荣获 2022 年行业协会部级科学技术一等奖。

This technology realizes unmanned operation of anode carbon block transfer process, precision management and process information traceability of carbon block warehousing and inventory information, and promotes intelligent production of electrolytic aluminum enterprises; it won the first prize of ministerial-level science and technology award by the industry association in 2022.



### 矿体高中段大盘区安全高效开采新技术

New technology for safe and efficient mining in large ore deposits areas at the high- and middle-section of the ore body

提升金属非金属矿山安全、高效、低碳开采技术水平，为资源节约型、环境友好型矿山实现绿色低碳开发提供技术支撑和工程示范，达到国际领先水平。

This technology enhances the level of safe, efficient and low-carbon mining technology in metal and non-metal mines, and provides technical support and engineering demonstration for resource-saving and environmentally-friendly mines to realize green and low-carbon development, reaching the international leading level.



### 高锗锌精矿锗高效提取及高纯化合物制备技术

Technology for high-efficient extraction of germanium from high germanium-zinc concentrates and the preparation of high-purity compounds

解决锗富集度不高、综合回收率低、锌粉耗量大、生产能耗高等重大技术难题，为高锗锌精矿锗高效提取及高纯化合物制备提供技术支撑，达到国际领先水平。

This technology solves the major technical problems of low germanium enrichment, low comprehensive recovery rate, high consumption of zinc powder, and high energy consumption, and provides technical support for the efficient extraction of germanium from high germanium-zinc concentrates and the preparation of high-purity compounds, reaching the international leading level.



### 高精度铜合金板带热轧装备及组织调控关键技术

High precision hot rolling equipment of copper alloy strip and key technology of microstructure control

显著提高合金的高温稳定性与最终使用性能，打破国外技术垄断与封锁，荣获 2022 年行业协会部级科学技术一等奖。

This technology significantly improves the high temperature stability and end-use performance of the alloy, breaking foreign technology monopoly and barriers; it won the first prize of ministerial-level science and technology award by the industry association in 2022.



### 案例 Case

## 长沙院 198m<sup>2</sup> 锌精矿流态化焙烧炉技术方案通过专家验收 Technology solution for the 198m<sup>2</sup> zinc concentrate fluidized roaster implemented by CINF Engineering Corporation Limited passes experts' acceptance inspection

长沙院联合广西南方有色集团开展 198m<sup>2</sup> 锌精矿流态化焙烧炉的炉型结构、抛料方式、进风方式等研究，采用模拟仿真对炉体应力场、颗粒场、流场及温度场进行了多场耦合数值仿真分析，开发结构最安全、生产效率与能源利用率最优的超大型流态化焙烧炉，是世界最大的锌精矿流态化焙烧炉。6 月，该技术方案顺利通过评审验收。

CINF Engineering Corporation Limited, together with Nanfang Nonferrous Metals Group in Guangxi Zhuang Autonomous Region, carried out research on the structure, material casting approach and air intake model of the 198m<sup>2</sup> zinc concentrate fluidized roaster, and conducted multi-field coupled numerical simulation analysis on the stress field, particle field, flow field and temperature field of the furnace body using simulation, to develop a super-large fluidized roaster with the safest structure and the best production efficiency and energy utilization, which is the largest zinc concentrate fluidized roaster in the world. In June, the technology solution successfully passed the experts' acceptance inspection.



### 技术验收现场

Acceptance inspection meeting for the technology solution



中色科技“一种轧制宽幅镁合金板带的工艺”获得第二十三届中国专利优秀奖

“Technology for rolling wide magnesium alloy plate and strip” developed by China Nonferrous Metals Processing Technology Co., Ltd. won the Prize of Excellence of the 23rd China Patent Award

## 数字信息化

### Digital Informatization

中铝国际顺应时代发展，将数字化、信息化发展作为企业实现高质量发展的重要引擎，多措并举推动企业实现智能化、信息化。2022年，中铝国际“智能建造一体化管控服务平台推动下属施工企业数字化转型”案例获评中国上市公司协会数字化转型“优秀案例”。

Responding to the trend of the times, we have taken the development of digitalization and information technology as an important engine for CHALIECO to achieve high-quality growth. And multiple measures have been adopted to promote the Company to become more digitized and intelligent. In 2022, the case of “Integrated management and control & service platform for intelligent building promotes the digital transformation of affiliated construction enterprises” of CHALIECO was recognized as an excellent case in the category of digital transformation by China Association for Public Companies (CAPCO).

#### 中铝国际加快数字化建设：

CHALIECO accelerates the development of digitalization:



加快勘察设计企业数字化交付技术应用的开发，持续推进重大重点科研项目的数字化转型工作，开展智能化应用新场景的研究和应用。

Accelerate the development of digital delivery technology applications for survey and design enterprises, continue to promote the digital transformation of major key scientific research projects, and carry out research and application of new scenarios of intelligent application.



加快实施施工企业 BIM 技术的应用，积极探索智慧工地建设，实现施工项目管控数字化和精细化。

Accelerate the implementation of the application of BIM technology in construction enterprises, actively explore the construction of smart sites, and realize digital and delicacy management and control of construction projects.



统筹建设工程技术管理信息系统，逐步形成业财融合一体化管控平台，充分“赋能”中铝国际各项管理活动。

Coordinate the development of engineering technology management information system, and gradually establish an integrated management and control platform for the integration of business and finance, and “empowers” the management activities of CHALIECO in an all-around manner.

**案例**  
Case

数智引领，六冶以“信息化+BIM”深入推进智慧建造  
China Nonferrous Metal Industrial No. 6 Metallurgy Construction  
Company uses “Informatization + BIM” to promote intelligent building

六冶以科技创新为理念，推动“信息化+BIM”技术应用普及，逐步将BIM技术引入工业工程、民用工程和铝制品应用等多个领域，有效促进公司技术、生产和市场开发三位一体的协同管理，推动企业数字化转型和高质量发展。

Insisting on the concept of innovation in science and technology, China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company promoted the broader application of “Informatization + BIM” technology and gradually introduced BIM technology into various fields such as industrial engineering, civil engineering and aluminum products application, which not only effectively promoted the coordinated management of the trinity of technology, production and market development, but also advanced the digital transformation and high-quality development of the enterprise.



安徽皖北医院项目

Wanbei Hospital project in Anhui Province

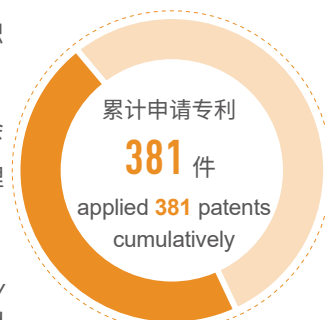


## 知识产权保护

### Protection of Intellectual Property Rights

中铝国际深入贯彻《企业知识产权管理规范》的国家标准 GB/T29490-2013，搭建知识产权管理体系，发布《知识产权管理手册》《知识产权管理制度控制程序汇编》等文件；全级次范围内印发《知识产权相关法律法规汇编》，组织开展贯标大会、内审、外审会议，提升各部门及各员工知识产权的保护意识。2022 年，中铝国际获得知识产权管理体系认证证书，累计申请专利 381 件，其中发明专利 176 件。

We have effectively implemented the national standard of *Enterprise Intellectual Property Management* (GB/T 29490-2013), built an intellectual property management system, and released the *Handbook for Intellectual Property Management*, the *Compilation of Control Procedures for Intellectual Property Management System*, and other rules and regulations. We have printed and issued the *Compilation of Laws and Regulations Relating to Intellectual Property Rights* company-wide, and organized standard implementation work conferences, as well as internal and external evaluation meetings to improve the consciousness of intellectual property rights protection of all departments and each and every employee. In 2022, CHALIECO received the Intellectual Property Management System Certificate, and applied 381 patents cumulatively, among which 176 were patents for invention.



发明专利  
176 件  
among which 176  
were patents for  
invention

## 品质工程

### High-Quality Projects

中铝国际按照集团“千方百计打造更多精品，积极参与各类质量奖申报，实施质量品牌提升”工作目标，践行“质量就是生命”的理念，不断打造优质工程、加强企业品牌建设，让质量成为企业发展的“金钥匙”。

According to the work objective of “Trying the best to build more high-quality projects, actively participating in various quality award selection and commending activities, and carrying out quality brand improvement initiatives” put forward by CHINALCO, we have put quality first, constantly built high-quality projects, and strengthened the building of corporate brands, making quality the “golden key” for enterprise development.

## 加强质量管理

### Strengthening Quality Management

中铝国际遵守《中华人民共和国产品质量法》《建设工程质量管理条例》《建设工程施工项目管理规范》等相关国家法律法规，制定《中铝国际直属总承包项目项目管理办法》《项目管理制度规定》等制度；通过推行竞赛机制、建立资料库等方式，多措并举加强质量管理。2022 年，中铝国际未发生给集团造成负面影响的质量事故。

We abide by the *Product Quality Law of the People's Republic of China*, the *Regulation on the Quality Management of Construction Projects*, the *Code of Construction Project Management*, and other relevant national laws and regulations, and have formulated the *Administrative Measures of China Aluminum International Engineering Corporation Limited on Direct General Contracting Projects*, the *Project Management Regulations*, and other rules and regulations. Through promoting competition mechanisms, establishing data banks, and adopting other effective measures, we have further enhanced quality management. In 2022, CHALIECO did not have any quality incidents that negatively impacted CHINALCO.

## 中铝国际质量管理举措：

### Quality management measures adopted by CHALIECO:

# 01

分析质量控制问题及难点，促进各企业优势互补

Analyze quality control problems and difficulties, and promote the complementary advantages of each enterprise

# 02

开展竞赛机制，推进质量交流

Carry out competition activities to promote exchanges on quality

# 03

建立资料数据库，提炼质量控制指标

Establish data banks to refine quality control indicators

# 04

整合设计院及施工企业资源，形成以技术把控质量的模式

Integrate the resources of design institutes and construction enterprises to form a model of quality control by technology

# 05

以成品质量为控制重点，形成成品质量互评监督机制及对标学习渠道

Focus on the quality of finished products, establish mutual evaluation and supervision mechanisms for the quality of finished products, and build learning channels for benchmark activities

# 06

以质量评价管理工作为推手，督促企业各项质量工作开展

Utilize quality evaluation management to urge enterprises to carry out various quality work

### 案例 Case

#### 九冶召开项目履约“三零”专项行动启动会

Jiuye Construction Co., Ltd. launches "Three Zeros" special campaign

4月，为推进公司项目高质量发展，全面实现“三零”（即工期零延误、质量零瑕疵、业主零投诉）目标，九冶组织召开项目履约“三零”专项行动启动大会，会议压实责任主体，以高标准、严要求提升项目管理水平。

In April, aiming at promoting the high-quality development of its projects and fully realizing the goal of "Three Zeros" (i.e., zero delay in schedule, zero defects in quality, and zero complaints from owners), Jiuye Construction Co., Ltd. held a kick-off meeting for the "Three Zeros" special campaign on project contract fulfillment. The meeting required that all entities must fully take on their responsibilities and enhance project management with high standards and strict requirements.

## 建设优质品牌

### Building Quality Brands

中铝国际通过组织、指导各成员企业参加“质量工作十大先进案例”申报评选活动，督促企业开展质量奖项的申报，开展有色金属行业 QC 质量管理小组活动，持续强化工程创优工作等，加强企业品牌建设。

By organizing and guiding the member enterprises to participate in the “Top 10 Outstanding Cases of Quality Work,” we have urged them to run for quality awards, carry out quality control circle activities in the nonferrous metals industry, continuously pursue engineering excellence, and strengthen the building of corporate brands.

2022 年，中铝国际共获得：  
In 2022, CHALIECO won the following awards:

国家优质工程（金）奖 **3** 项

鲁班奖 **1** 项

钢结构金奖 **1** 项

省部级勘察、咨询、设计、标准设计、工程成果奖共 **177** 项

各级 QC 成果奖项共 **90** 项

**Three** (gold) prizes of National Quality Engineering Award

**One** prize of China Construction Engineering Luban Award

**One** gold prize of China Construction Engineering Steel Structure Award

**177** achievement awards for survey, consulting, design, standard design, and engineering at provincial/ministerial level

**90** quality control awards at various levels



#### 贵阳院设计的云南神火铝业项目荣获国家优质工程金奖

Yunnan Shenghuo project designed by Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited won gold prize of National Quality Engineering Award

贵阳院设计的云南神火铝业有限公司 90 万吨绿色水电铝材一体化项目，项目团队结合现场实际，制定严密施工计划，引入先进技术设备，深度落实网格化管理，高质量完成项目任务交付。2023 年 1 月，此项目荣获 2022—2023 年度国家优质工程金奖，是中国有色金属行业第一次获此殊荣。

Yunnan Shenghuo Aluminum Industry Co., Ltd.'s 900,000 Tons/Year Green Hydropower and Aluminum Integration Project was designed by Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited. Based on the actual situations, the project team of the institute developed a complete and thorough construction plan, introduced sophisticated technologies and equipment, and implemented grid-based management in a deep-going way to ensure the high-quality completion of the project. In January 2023, the project won the gold prize of National Quality Engineering Award (2022-2023), which was the first of its kind in China's nonferrous metals industry.



### 案例 Case

长沙院环保升级搬迁改造项目获有色金属工业优质工程奖  
The environmental protection upgrading and relocation project of CINF Engineering Corporation Limited won quality project award

长沙院承包赤峰云铜有色金属有限公司环保升级搬迁改造项目，项目团队合理利用项目资源，科学组织施工，积极开展技术攻关，该项目成功上榜 2020—2021 年度有色金属工业优质工程表彰名单。

With an engineering procurement and construction (EPC) contract, CINF Engineering Corporation Limited undertook the environmental protection upgrading and relocation project of Chifeng Yuntong Nonferrous Metals Co., Ltd. The project team of CINF Engineering Corporation Limited made rational use of project resources, organized construction in a scientific manner, and actively carried out technical research. The project was recognized as one of the 2020-2021 quality projects of China nonferrous metals industry.



赤峰云铜有色金属有限公司环保升级搬迁改造项目

The environmental protection upgrading and relocation project of Chifeng Yuntong Nonferrous Metals Co., Ltd.



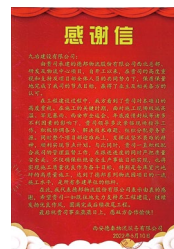
九冶承建的新疆维吾尔自治区新华书店物流基地项目荣获第十五届“中国钢结构金奖”

Xinjiang-based Xinhua Bookstores Logistics Base Project co-undertaken by Jiuye Construction Co., Ltd. won the gold prize of 15th China Construction Engineering Steel Structure Award

# 优质服务 High-Quality Services

中铝国际围绕市场和客户多元化需求，制定实施《中铝国际国内业务市场营销管理办法》《中铝国际大客户营销管理办法》等营销管理制度；建立公司大客户营销管理体系，各单位协同发力，提升大客户综合服务能力，提升客户满意度；高度重视客户权益保护，完善售后权益保护机制，积极响应顾客投诉，严格保密客户隐私。2022年，客户满意度为86%。

Centering on the market and diversified demands of customers, we have formulated the *Administrative Measure of China Aluminum International Engineering Corporation Limited on Domestic Business Marketing*, the *Administrative Measure of China Aluminum International Engineering Corporation Limited on Key Account Marketing*, and other marketing management regulations. We have established a key account marketing management system, and all units are working together to enhance the comprehensive service capability of key accounts and improve customer satisfaction. We have attached great importance to the protection of customer rights and interests, refined after-sales rights and interests protection mechanisms, actively responded to customer complaints, and strictly kept customer privacy confidential. In 2022, the customer satisfaction was 86 percent.



九冶、十二冶收到业主感谢信

Letters of thanks received by Jiuye Construction Co., Ltd. and China Nonferrous Metal Industrial No. 12 Metallurgy Construction Company from project owners



## 强化服务意识，中铝国际召开 2022 年市场营销会 CHALIECO holds 2022 marketing conference to enhance service consciousness

2月，中铝国际召开2022年市场营销会议，分析中铝国际的优势和发展潜力，明确中铝国际的战略定位，为增强服务业主、服务客户的意识，全力打造创效创优的好项目打下坚实基础。

In February, CHALIECO held the 2022 marketing conference to analyze the advantages and development potential of CHALIECO and clarify the corporate strategic positioning. The conference laid a solid foundation for enhancing the consciousness of serving project owners and customers and delivering quality projects with efficiency and excellence.



2022 年市场营销会  
2022 marketing conference held by CHALIECO



# 03

## 环境责任

### ENVIRONMENTAL RESPONSIBILITY

#### 绿色低碳, 让家园永续

Building a Better Community with Green and Low-Carbon Initiatives

生态环境是人类生存和发展的根基,绿色也是中铝国际的发展底色。中铝国际紧随国家绿色发展战略,积极投身绿色环保产业工程建设,将响应双碳目标、加强环境管理、落实绿色运营、打造低碳文化等多项指标作为低碳发展的主方向,做“绿色工作”的践行者和生态文明理念的积极传播者,为共建清洁美丽世界作出更大贡献。

Natural environment is the basis of human survival and development, and green is also the defining feature of CHALIECO. Closely focusing on the national green development strategy, we have been committed to building the projects in green and environmental protection industry, and taken the responding to carbon peaking and carbon neutrality goals, strengthening environmental management, implementing green operations, and creating low-carbon culture as the main directions of low-carbon development. We are committed to taking the initiative to act as a role model in disseminating and practicing the ideas of ecological civilization, making greater contributions to building a clean and beautiful world.









# 响应双碳

## Response to Carbon Peaking and Carbon Neutrality Goals

中铝国际积极响应国家“3060”双碳目标，落实中铝集团《碳达峰碳中和行动方案》，通过减少碳排放相关举措应对气候变化，坚定走绿色低碳发展道路。

We have actively responded to the goals of peaking carbon emissions before 2030 and achieving carbon neutrality before 2060, and taken the initiative to implement the *Action Plan for Carbon Peaking and Carbon Neutrality* of CHINALCO. We have adopted various measures to reduce carbon emissions and tackle climate change, and firmly followed the development path of green and low carbon.

### 案例 Case

#### 绿色发展，九冶打造绿色新能源

Jiuye Construction Co., Ltd. develops new energy to promote green development

九冶积极践行绿色低碳发展理念，助力实现“双碳”目标，不断开拓新能源领域，中标建设的东海特钢1\*100MW超高温亚临界煤气发电、3GW高效单晶光伏组件生产基地B3车间等项目，为九冶实现产品结构转型、践行“双碳”行动助力。

Jiuye Construction Co., Ltd. takes the initiative to implement the ideas of green and low-carbon development, facilitates to the realization of carbon peaking and carbon neutrality goals, and continuously establish business presence in the field of new energy. The projects undertaken by Jiuye Construction Co., Ltd. such as the 1\*100MW ultra-high temperature sub-critical gas power generation project of Hebei Donghai Special Steel Group and the B3 workshop project of the 3GW high-efficient monocrystalline PV module production base of LONGi Green Energy Technology Co., Ltd. facilitated the transformation of its product structure and the implementation of the initiative to achieve carbon peaking and carbon neutrality goals.



隆基 B3 项目

LONGi B3 workshop project

### 案例 Case

#### 抢抓“双碳”机遇，贵阳院聚焦能源环保

Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited seizes opportunities and focuses on energy and environmental protection

贵阳院明确以新能源发展、能源转化作为转型发展方向入局光伏项目，成立分布式光伏发电项目创效小组，对光伏项目案例及建模软件进行系统的学习培训，形成自身核心技术。2022年，贵阳院已完成或正在进行的光伏项目达到11项，全力以赴助力节能降碳。

Taking new energy development and energy transformation as the direction of transformation and development, Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited established business presence in PV power projects. The institute set up specialized teams for distributed PV power projects, and conducted training programs on PV power project cases and modeling software systematically. With those efforts, core technologies have been developed. In 2022, the number of PV power projects completed or under construction undertaken by the institute reached 11. All-out efforts have been made to help reduce energy consumption and carbon emissions.

## 环境管理 Environmental Management

中铝国际深入践行绿色发展理念，持续优化环境管理制度，完善管理体系，加强环境风险控制，严守生态环保红线，以实际行动助力建设美丽中国。2022年，公司环保总投入3,423.10万元。

We have implemented the ideas of green development in a deep-going way, constantly optimized environmental management systems, refined management rules and regulations, enhanced environmental risk control, and held fast to the red line of ecological protection, facilitating to the building of a beautiful China with concrete actions. In 2022, the investments in environmental protection reached RMB34.231 million.

公司环保总投入

**3,423.10** 万元

the investments in environmental protection reached RMB**34.231** million

## 管理制度 Management Systems

中铝国际坚定以习近平生态文明思想为指导，严格遵守《环境保护法》《水污染防治法》《大气污染防治法》《固体废物污染环境防治法》等国家及运营所在地环保法律法规，组织开展节能环保各项管理工作。

Guided by Xi Jinping thought on ecological conservation, we have strictly abided by the *Environmental Protection Law of the People's Republic of China*, the *Water Pollution Prevention and Control Law of the People's Republic of China*, the *Atmospheric 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 Environmental Pollution by Solid Waste*, and other national laws and regulations, as well as the laws and regulations where the business is operated, and carried out energy-saving and environmental protection management accordingly.



中铝国际强化环境内部管理，坚持 HSE 体系及中铝集团 CAHSE 体系并轨运行，对环境管理进行持续监督；修订完善 QHSE 管理手册及程序文件等内部制度，组织公司、分公司、项目部开展环境因素适用的安环类法律法规等识别评价及合规性评价工作，确保 QHSE 体系运行良好。2022 年，九冶通过 ISO14000、GB/T24001-2016 环境管理体系认证。

We have strengthened internal environmental management, integrated the operation of the HSE management system and the CAHSE management system of CHINALCO, and conducted ongoing oversight of environmental management. We have revised and refined the QHSE management handbook and procedural documents, as well as other internal rules and regulations, and organized CHALIECO, branch companies and project departments to carry out identification and evaluation of safety and environmental laws and regulations applicable to environmental factors and compliance evaluation work, so as to guarantee the smooth operation of QHSE management system. In 2022, Jiuye Construction Co., Ltd. passed the ISO 14000 and GB/T 24001-2016 environmental management system certifications.

## 环保预警及应急机制

### Environmental Early Warning and Emergency Mechanisms

中铝国际完成《突发环境事件报告和调查规定》的修订，加强环保风险控制，提高重大环境污染事件应急能力；对涉及环保设施项目进行安全风险排查，累计排查并整改 36 项问题及隐患。报告期内，中铝国际未发生突发环境事件。

We have revised the *Regulations on Reporting and Investigation of Environmental Emergencies*, strengthened environmental risk control, and improved the emergency response capability for major environmental pollution events. We have conducted safety risk inspection on projects involving environmental protection facilities, and 36 issues and hidden dangers identified have been rectified cumulatively. During the reporting period, there were no environmental emergencies occurred in the Company.

## 绿色运营

### Green Operations

中铝国际持续健全节能减排政策机制，组织实施节能减碳重点工程，推动资源利用效率大幅提高、主要污染物排放总量持续减少；加快构建绿色技术创新体系，打造绿色技术研发、应用推广和产业发展有机整体；以环保节能为先导，打造绿色施工标杆；发挥材料优势，实现铝应用推广，为用户提供更清洁、更高效、更绿色的解决方案。

We have continuously refined the energy-saving and emission reduction policies and mechanisms, implemented key energy-saving and emission reduction projects, and promoted significant improvement in resource utilization efficiency and continuous reduction in total emissions of major pollutants. We have accelerated the construction of a green technology innovation system, and integrated the R&D, application and promotion of green technologies with industrial development in an organic manner. We have exploited the pioneering role of energy-saving and emission reduction and strived to set a new benchmark for green construction. We have made use of the advantages of materials and promoted the application of aluminum, trying the best to provide cleaner, more efficient and greener solutions for customers.

## 资源管理

### Resource Management

中铝国际持续制定完善资源管理制度，推进相关制度要求落实落地；优化能源结构，加快实现内部清洁能源转型；提高用水效率，减少人均水资源消耗量。2022年，中铝国际能源消耗总量1.14万吨标准煤，节约用水22.3万吨，天然气消耗量223,793.16立方米，未发生节能违法违规事件。

We have constantly established and improved resource management systems, and promoted the implementation of relevant requirements. We have optimized energy mix, and accelerated the realization of internal clean energy transition. We have improved water use efficiency and reduced water consumption per capita. In 2022, the total energy consumption of CHALIECO was 11,400 tons of standard coal equivalent, and the consumption of natural gas was 223,793.16 cubic meters. The Company saved 223,000 tons of water throughout the year. There were no energy-saving violations occurred in the Company during the reporting period.



中铝国际能源标准煤消耗总量

**1.14** 万吨

The total energy consumption of CHALIECO was **11,400** tons of standard coal equivalent



节约用水

**22.3** 万吨

The Company saved **223,000** tons of water throughout the year



天然气消耗量

**223,793.16** 立方米

The consumption of natural gas was **223,793.16** cubic meters

## 污染防治

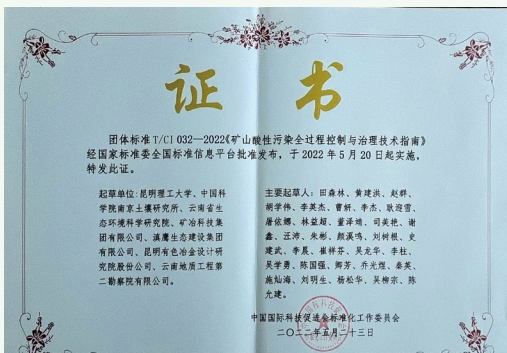
### Pollution Prevention and Treatment

中铝国际严格按国家标准《污水综合排放标准》（GB8978-1996）的要求进行污染物排放，持续修订完善《固体废物管理规定》《粉尘和毒物管理规定》等制度规定，推动生态环境质量持续改善。

We have strictly followed the requirements of *Integrated Wastewater Discharge Standard* (GB 8978-1996) for pollutant discharge, and continuously revised and improved the rules and regulations including the *Regulations on Solid Waste Management* and the *Regulations on Dust and Poison Control*, promoting continuous improvement of ecological and environmental quality.

公司积极落实污染防治政策，确保废气、废水等排放物达到排放标准的同时，积极推进废水废气减排工作的开展；持续加强对施工现场、生产车间固废（危废）的管控力度，力求施工场所符合安全环保要求，收集、贮存、运输、利用、处置固体废物采取“防扬散、防流失、防渗漏”等防污染措施；危险固废委托具有资质的单位进行转移和处理。

We have taken the initiative to implement pollution prevention policies to ensure that emissions such as waste gas and wastewater meet emission standards while actively promoting the reduction of wastewater and waste gas. We have constantly strengthened the control of solid waste (hazardous waste) at construction sites and production workshops, and strived to meet safety and environmental requirements at construction sites. We have taken anti-pollution measures to collect, store, transport, utilize and dispose of solid waste, such as the measures aiming at preventing the scattering, run-off and leakage of solid waste. Hazardous solid waste has been entrusted to qualified units for transfer and treatment.



**昆明院参编的团体标准 T/CI032-2022《矿山酸性污染全过程控制与治理技术指南》获批发布**

*The Full Process Control and Management Technology Guide for Acid Pollution in Mines (T/CI032-2022), an association standard co-authored by Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd., was approved to release*



**长沙院中金岭南丹霞冶炼厂炼锌渣绿色化升级改造项目整体联动试车圆满成功**

*Integrated commissioning of the green upgrading and transformation project for zinc smelting slag area of Danxia Smeltery under Shenzhen Zhongjin Lingnan Nonfermet Co., Ltd. undertaken by CINF Engineering Corporation Limited was successfully completed*



## 绿色技术研发

### R&D of Green Technology

中铝国际积极组织实施绿色技术的研究与推广，依托工程项目在能源使用效率提升、废气有机处理、污染物排放控制与治理等领域展开技术研究和推广应用。同时，中铝国际从设计源头出发，优先发展和推广能够解决行业难题的关键核心技术和产品。

We have actively organized and implemented the research and promotion of green technologies, and developed and promoted the application of technologies in the fields of, among others, energy use efficiency improvement, organic treatment of exhaust gases, and pollutant emission control and management, with engineering projects as focal points. Starting from engineering design, we have given priority to develop and promote key core technologies and products that can solve industry challenges.

#### 中铝国际有色领域一流环保技术（列举）

##### Top-notch environmentally-friendly technologies of CHALIECO in nonferrous metals industry (examples)

<p><b>沈阳院</b> Shenyang Aluminum &amp; Magnesium Engineering and Research Institute Company Limited</p>	<p>炭素阳极智能堆垛机组及仓储管理系统</p> <p>Carbon anode intelligent stacking unit and storage management system</p>	<p>提高堆垛天车调度水平，降低能耗，提高仓储管理水平</p> <p>Improve stacking crane scheduling, reduce energy consumption, and enhance warehouse management</p>
<p><b>贵阳院</b> Guiyang Aluminum &amp; Magnesium Engineering and Research Institute Company Limited</p>	<p>铝电解烟气高效减排、节能降耗净化技术</p> <p>High-efficient emission reduction, energy-saving and low-consumption purification technology for aluminum electrolytic flue gas</p>	<p>减少氧化铝破损率和减少循环氧化铝使用量，较大幅度提高净化效率、减少污染物排放，根治铝行业湿法脱硫废水的“痛点”</p> <p>Reduce the failure rate of alumina and the use of recycled alumina, significantly improve purification efficiency, reduce pollutant emissions, and solve the “pain point” of wet desulfurization wastewater in the aluminum industry</p>
<p><b>长沙院</b> CINF Engineering Corporation Limited</p>	<p>磷酸铁生产废水资源化处理和循环利用成套技术</p> <p>Complete set of technology for resourceful treatment and recycling of wastewater from ferric phosphate production</p>	<p>实现磷酸铁生产废水中氮磷等有价值资源综合回收和废水循环利用</p> <p>Realize comprehensive recovery of valuable resources such as nitrogen and phosphorus in wastewater from ferric phosphate production, as well as the recycling of wastewater</p>
<p><b>长勘院</b> China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd.</p>	<p>微渗透负压防渗净化技术</p> <p>Micro-permeation negative pressure anti-permeation purification technology</p>	<p>阻止地表水进入渣库，减少渗滤液处理量，有效控制污染物的外泄</p> <p>Prevent surface water from entering the slag storage area, reduce the leachate treatment volume, and effectively control the leakage of pollutants</p>

### 案例 Case

#### 践行“两山”理念，长沙院研发低碳技术

CINF Engineering Corporation Limited develops low-carbon technologies to protect lucid waters and lush mountains

长沙院研发的矿山尾矿资源低碳高值综合利用一体化集成技术，成功应用于湖北大冶大红山矿、广东凡口铅锌矿等，为实现矿山尾矿资源化综合利用、尾矿库顺利退出提供坚实保障。

The integrated technology for low-carbon and high-value utilization of mine tailings resources developed by CINF Engineering Corporation Limited was successfully applied to Daye Dahongshan Mine in Hubei Province, Fankou Lead-Zinc Mine in Guangdong Province, and other mines, and provided a solid guarantee for the realization of resourceful and comprehensive utilization of mine tailings and the comprehensive treatment of tailing ponds.

### 案例 Case

#### 建设绿色矿山，长沙院引领绿色开采技术

CINF Engineering Corporation Limited leads development of green mining technologies

由长沙院承担设计的广西华锡集团有限公司铜坑锌多金属矿，采用国际先进的低成本大宗利用矿山固体废料的充填等技术，引领我国深地资源绿色开发，已成为国家级绿色矿山试点单位。

The Dachang copper-zinc mine of Guangxi Huaxi Group Co., Ltd. designed by CINF Engineering Corporation Limited adopted international advanced technologies such as low-cost, large-scale utilization of mine solid waste filling to lead the green development of deep earth resources in China. The mine has become a national pilot unit of green mines.



广西华锡集团有限公司铜坑锌多金属矿

Dachang copper-zinc mine of Guangxi Huaxi Group Co., Ltd.

**案例**  
Case**九冶采用先进技术赋能环保工程**  
Jiuye Construction Co., Ltd. empowers environmental project with sophisticated technologies

九冶把钢铁厂烧结烟气脱硫脱硝综合治理提升改造项目作为转型升级重点和主攻方向，采用先进的活性炭法处理技术，实现陕钢集团汉中钢铁有限责任公司 2×265 m<sup>2</sup>烧结烟气综合治理提升改造，为促进区域环境空气质量持续改善起到积极的推动作用。

Jiuye Construction Co., Ltd. took the sintering flue gas desulfurization and denitrification comprehensive treatment and upgrading project of the iron and steel plant as the focus of transformation and upgrading and the main direction, using advanced activated carbon processing technologies to implement the 2×265m<sup>2</sup> sintering flue gas comprehensive treatment and upgrading project of Shaanxi Steel Group Hanzhong Iron and Steel Co., Ltd. The project played a positive role in promoting the continuous improvement of regional environmental air quality.



陕钢集团汉钢 2×265 m<sup>2</sup>烧结烟气综合治理提升改造项目

The 2×265m<sup>2</sup> sintering flue gas comprehensive treatment and upgrading project of Shaanxi Steel Group Hanzhong Iron and Steel Co., Ltd.

## 绿色施工

### Green Construction

中铝国际始终秉承绿色施工理念，建立绿色施工标杆，按照“六个百分百”目标进行管控，减少和减轻对周边的影响；提高施工现场使用新材料、新工艺、新设备应用率，减少材料浪费，最大限度做到“四节一环保”；收尘、除烟装置配备到位并有效运行，落实焊接、切割、喷涂作业生产车间的绿色运营。

We have always been committed to green construction and strived to set a new benchmark. According to the “Six 100%” objective of project construction, we have tried the best to reduce the impact on surrounding environment. We have improved the use of new materials, new processes, new equipment at construction sites, reduced material waste, and maximized the “four savings and one environmental protection.” Dust collection and smoke removal devices have been in place and in effective operation. Green operations for welding, cutting and painting have been implemented.



## 中铝国际项目施工“六个百分百”目标：

CHALIECO International Project Construction "Six 100%" Target:

封闭管理百分百

100% of closed-off management

100%

道路硬化百分百

100% of road hardening

物料覆盖百分百

100% of material coverage

100%

车辆清洗百分百

100% of vehicle cleaning

清洁保湿百分百

100% of cleansing and moisturizing

100%

密闭运输百分百

100% of closed-off transport

## 铝应用推广

### Promotion of Aluminum Application

中铝国际落实推进集团“扩大铝应用，向铝精深加工、价值链高端转型”的发展战略，不断扩大铝在基础设施、电信产品、工业设备等方面的替代使用，推动以铝代钢和以铝节木。

We have effectively implemented CHINALCO's development strategy of expanding aluminum applications and transforming to deep processing of aluminum and high-end value chain, and continuously promoted the alternative use of aluminum in, among others, infrastructure, telecommunication products, industrial equipment, as well as the use of aluminum instead of steel and wood.

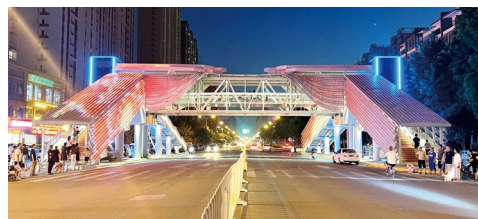
#### 案例 Case

#### 助力城市低碳发展，六冶扩大铝应用

China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company expands the use of aluminum to help urban low-carbon development

2022年，六冶西安分公司承建的陕西省咸阳市首座铝合金人行天桥正式投入使用，为城市绿色低碳发展贡献力量。

The first pedestrian bridge made of aluminum alloys in Xianyang, Shaanxi Province, which was built by Xi'an branch company of China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company, was officially put into use in 2022. This project highlighted the contributions made by the branch company to the green and low-carbon development of the city.



陕西咸阳市铝合金人行天桥

Pedestrian bridge made of aluminum alloys in Xianyang, Shaanxi Province

# 低碳文化

## Low-Carbon Culture

中铝国际积极推进绿色文化宣贯，面向公众传递环保理念，引导并带动员工践行低碳生产生活方式，深入开展生态环境保护工作，实现环保理念内化于心、外化于行，打造中铝国际“绿色名片”。

We have taken the initiative to publicize green culture and put the culture into practice, promoted the ideas of environmental protection to the public, and guided and encouraged employees to practice low-carbon production and lifestyle. We have carried out the environmental protection work in a deep-going way, kept firmly in mind the ideas of environmental protection, and put it into practice, striving to build the “green brand names” of CHALIECO.

# 强化环保理念

## Enhancing Environmental Protection Ideas

中铝国际开展各类环保宣传和专项培训活动，积极参与生态环保公益实践，争做保护生态的先行者、倡导者和引领者，让绿色低碳理念深入人心。

We have carried out various publicity activities and special training programs with the focus on environmental protection, and actively participated in public welfare activities in ecological and environmental protection. As a pioneer, advocate and leader, we have intensified our efforts to implement the green and low-carbon ideas.



中铝国际开展“落实双碳行动，共建美丽家园”低碳日宣传活动

CHALIECO publicized the national low-carbon day with the theme of “actions toward carbon peak and carbon neutrality to jointly build a beautiful homeland”

# 倡导绿色生活

## Advocating Green Lifestyle

中铝国际鼓励员工节约每度电、每滴水，下班前主动检查关闭电源，避免长明灯、空流水的现象；推动实行无纸化办公，通过建设“无纸化”会议系统等措施，减少氮氧化物和二氧化硫的排放；倡导绿色出行理念，市内出行首选乘坐公交车、骑自行车或步行等方式。

We encourage our employees to save electricity and water and take the initiative to check and turn off power before leaving work. We promote paperless office practices, and have reduced the emissions of  $\text{NO}_x$  and  $\text{SO}_2$  by adopting the measures such as building the “paperless” conferencing system. We advocate the concept of green travel, and encourage employees to travel by bus, bicycle or on foot for short trips in the city.

## 开展生态保护

### Conducting Ecological Protection

中铝国际在生产施工过程中融入生物多样性保护理念，降低业务经营对生物多样性及生态的影响，实现与环境融合、与生物共荣；积极参与生态修复项目，不断加大生态修复力度，改善生态环境质量，为共同构建地球生命共同体贡献力量。

We have integrated the concept of biodiversity conservation in the production and construction process, and reduced the impact of business operations on biodiversity and ecology, aiming at achieving harmonious coexistence with the nature. We have taken the initiative to participate in ecological restoration projects, intensified ecological restoration efforts, and improved the quality of ecological environment, contributing to the building of a shared future for all life on earth.

#### 案例 Case

#### 昆勘院实施环境整治及土地复垦工程

Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd. implements living environments and land reclamation projects

昆勘院通过实施厂区内遗留建构筑物拆除及安全处置、生产区场地污染土壤修复治理等，对云南景谷矿冶有限公司选冶厂场地进行环境整治，使周围土壤、地表水及地下水的污染及危害得到控制，项目区生态环境得到恢复。

Through the implementation of the demolition and safe disposal of the remaining buildings and structures in the plant area and the restoration of contaminated soil in the production area, Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd. carried out environmental restoration of the site of mining and smelting plant under Yunnan Jinggu Mining And Metallurgy Co., Ltd., so that the pollution and hazards of the surrounding soil, surface water and groundwater are controlled and the ecological environment of the project area is restored.



环境整治前后对比

Comparison of before and after treatment



### 案例 Case

#### 昆明院助力磷区变绿洲

Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd. turns sulfur smelting waste areas into oases

4月，昆明院设计的五个历史遗留硫磺冶炼废渣综合治理及生态恢复工程通过初步验收，该项目解决了“区域适生植物组合选别”“临河废渣防流失”等多个固废处置和生态修复技术难题，助力推进赤水河流域生态治理与修复。

In April, the comprehensive treatment and ecological restoration project for five historical sulfur smelting waste areas designed by Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd. passed the preliminary acceptance inspection. The project solved several technical difficulties relating to solid waste control and ecological restoration such as “selection of regionally adapted plants” and “riverfront waste slag prevention,” and facilitated the ecological governance and restoration of Chishui river basin.



环境整治前后对比

Comparison of before and after treatment

### 案例 Case

#### 打造生态宝地，六冶开展嵩县绿色低碳生态项目

China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company implements green and low-carbon ecological project to improve ecosystem

六冶实施的嵩县环陆浑湖生态治理及综合提升项目，通过绿化种植、景观桥建设及园建工程三大施工方向，将区域打造成具有生态屏障、生态涵养功能的滨水景观廊道，保护陆浑湖国家湿地公园和洛阳市饮用水源地的同时，推动嵩县社会经济发展。

The ecological governance and integration improvement project for Lulun Lake area in Songxian County, Henan Province was implemented by China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company. Centering on the three major implementation directions of green planting, landscape bridge construction, and garden construction, the project department transformed the area into a waterfront landscape corridor with the functions of ecological shield and ecological conservation. While protecting Lulun Lake National Wetland Park and the drinking water source of Luoyang City, the project promoted the social and economic development of Songxian County.



嵩县环湖项目“彩虹色”乐道桥

The colorful Ledao Bridge of the project

# 04

## 员工责任

### RESPONSIBILITY FOR EMPLOYEES

#### 助力成长, 让人才涌流

Facilitating Career Development and Unleashing Creativity of Talented People

员工是企业发展的基石, 只有不断塑造人才个人价值, 才能更好地实现企业共创。中铝国际重视并积极维护员工的各项合法权益, 通过建立系统化、制度化的员工晋升体系和培训体系, 为员工提供平等的学习成长机会, 关注员工身心健康, 筑牢安全生产防线, 关心关爱员工生活, 携手员工创造公平、和谐、幸福的工作环境。

Employees are the cornerstone for corporate development. Only by constantly creating individual value of the talented people can we better create value with the enterprise. We attach importance to and actively protect the legitimate rights and interests of employees. Through establishing systematic and institutionalized staff promotion systems and training systems, we have provided equal learning and growth opportunities for employees. We pay attention to the physical and mental health of employees, and have built a solid line of defense for work safety. We enhance employee care and work together with employees to create a fair, harmonious and happy working environment.







再造竞争新优  
科学发展上水

1972  
HONEY CROWN



# 权益保障

## Rights and Interests Protection

中铝国际严格遵守《劳动法》《未成年人保护法》等法律法规，坚决反对任何形式的童工与强制劳工等非法用工形式，在工作时长、休假、个人隐私保护等多方面保障员工权益，与员工共建健康和谐、稳定共赢的劳动关系。报告期内，公司未发生使用童工及强制劳工等违规情况。

We strictly abide by the *Labor Law of the People's Republic of China*, the *Law of the People's Republic of China on the Protection of Minors*, and other laws and regulations. We firmly oppose any form of child labor, forced labor and other illegal forms of employment, protect the rights and interests of employees in various aspects such as working hours, leave, and personal privacy protection, and build a healthy and harmonious, stable and win-win employment relationship with employees. During the reporting period, CHALIECO did not have any violations such as the use of child labor and forced labor.

### 2022 年中铝国际员工情况 (单位: 人)

Employees at CHALIECO in 2022 (Unit: person)

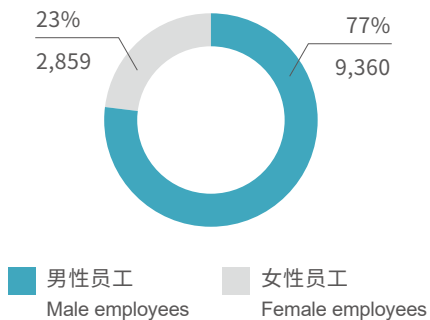
员工总人数

Total number of employees

12,219

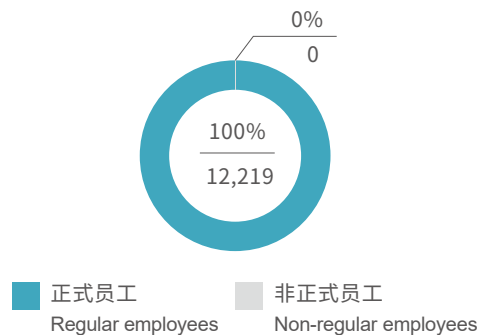
#### 按性别划分的员工人数

Number of employees by gender

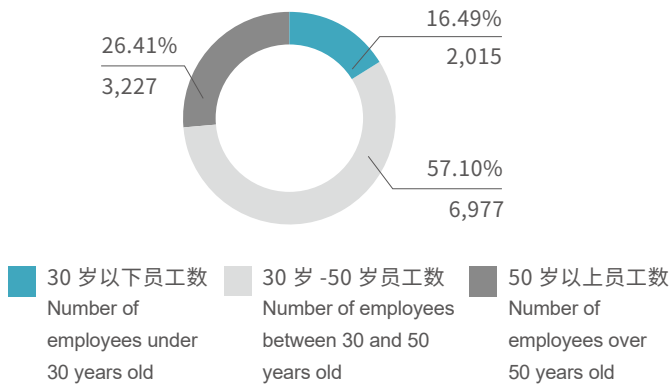


#### 按雇佣类型划分的员工人数

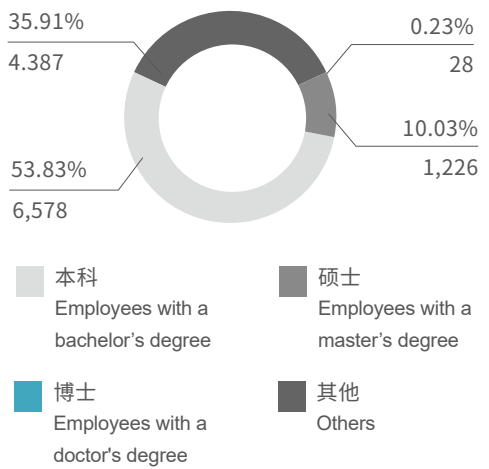
Number of employees by type of employment



按年龄划分的员工人数  
Number of employees by age

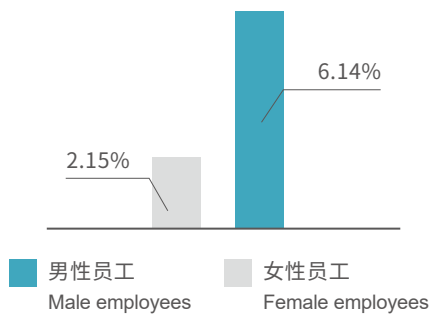


按学历划分的员工人数  
Number of employees by education background

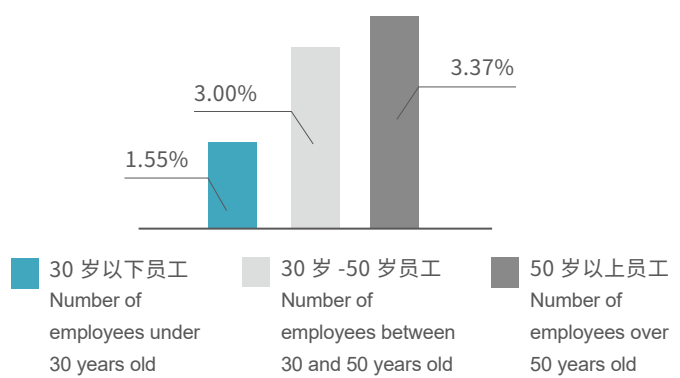


2022 员工流失率  
Employee turnover in 2022 **8.42%**

按性别划分的员工流失比例  
Employee turnover by gender



按年龄划分的员工流失比例  
Employee turnover by age



## 平等雇佣 Equal Employment

中铝国际坚持性别、民族、信仰、年龄无差别的雇佣原则，保证招聘过程程序合规、流程规范，确保所有员工依法享有各项权益和公平公正的待遇，为员工打造多元包容、公平透明的职场环境。2022 年，未发生重大劳动争议和人权投诉问题。

Adhering to the principle of non-discriminatory employment in terms of gender, ethnic group, faith and age, we have ensured that the recruitment process is compliant and the process is standardized, guaranteed that all employees enjoy all rights and benefits and fair and just treatment according to the law. We are committed to creating a diversified and inclusive, fair and transparent workplace for employees. In 2022, the Company did not have any major labor disputes or human rights complaints.

## 薪酬福利 Remuneration and Benefits

中铝国际不断规范和完善员工薪酬管理制度，依法为员工缴纳社会保险和公积金，为员工提供具有行业竞争力的薪酬体系和福利保障机制；增强薪酬待遇对科技人才的激励效果，充分调动员工积极性；完善优化海外人才薪酬结构和收入水平。

We have continuously regulated and improved the remuneration management system for employees, paid social insurance and provident fund for employees in accordance with the law, and provided employees with an industry-competitive remuneration and benefits package. We have enhanced the incentive effect of the remuneration and benefits package for scientific and technological personnel and fully mobilized employees' enthusiasm. We have improved and optimized the remuneration structure and income level of overseas employees.

## 民主管理 Democratic Management

中铝国际落实员工民主管理，充分发挥以职代会为基础形式的民主管理机制，严格履行民主程序，通过召开职代会，切实保障员工的知情权、建议权、参与权和监督权。

We have implemented the democratic management of employees, and given full play to the democratic management mechanisms based on the form of the employees' congress. We have strictly fulfilled the democratic procedures, and effectively protected employees' rights to information, make suggestions, participation and supervision by holding employees' congress.



中铝国际召开职工代表大会  
Employees' congress held by CHALIECO



# 员工发展

## Employee Development

中铝国际坚持人才强企理念，畅通人才发展通道，完善优化人才培养体系，为员工提供释放能力、实现价值的舞台，为公司“科技+国际”发展战略提供有力的干部人才支撑。

Insisting on the concept of developing enterprise by talented people, we have built smooth channels for talent development, improved and optimized talent training systems, and provided a stage for employees to display their talents and realize self-fulfillment. Those efforts have provided a strong talent support for the Company implement the development strategy of “S&T + Internationalization.”

### 畅通晋升通道

#### Building Smooth Promotion Channels

中铝国际针对性做好培养、选拔，鼓励专业技术人员立足本职工作岗位，建立健全专业技术人员职业发展通道，让每一位员工都能在公平、公正的竞争环境下发挥自我价值，与公司共同成长。2022年，共49人通过了初、中级职称评审及高级职称初审，通过率为89%。

We have done a good job in training and promoting talented people, and encouraged professionals and technical personnel to fulfill their own duties. We have established and improved career development channels for employees, so that everyone can realize self-fulfillment in a fair and impartial competitive environment and grow together with the Company. In 2022, a total of 49 employees passed the preliminary evaluation of junior and intermediate professional titles, as well as the preliminary evaluation of senior professional titles, with a passing rate of 89 percent.



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## 重视人才培养 Focusing on Talent Cultivation

中铝国际高度重视员工的学习成长，聚焦不同类别、不同层级员工的能力提升，制定一系列员工培训方案，明确培养方式，搭建完整的培训体系。2022 年，公司本部共举办中铝国际讲堂 24 期、中铝国际夜校 8 期，公司全级次企业累计培训 28,686 人次，培训投入 738.19 万元，培训时长 283,428.00 小时。

We have attached great importance to the growth of our employees, and focused on the ability improvement of employees in different fields and at all levels. We have developed a series of employee training programs, clarified the training approaches, and built a complete training system. In 2022, the headquarters of the Company held 24 CHALIECO lectures and conducted eight CHALIECO night school training programs. A total of 28,686 person-times of employees from the headquarters and affiliated enterprises at all levels participated in training activities throughout the year; the investments in training reached RMB7.3819 million, and the course length amounted to 283,428.00 hours.



公司全级次企业累计培训

**28,686** 人次

A total of **28,686** person-times of employees from the headquarters and affiliated enterprises at all levels participated in training activities throughout the year



培训投入

**738.19** 万元

the investments in training reached RMB**7.3819** million



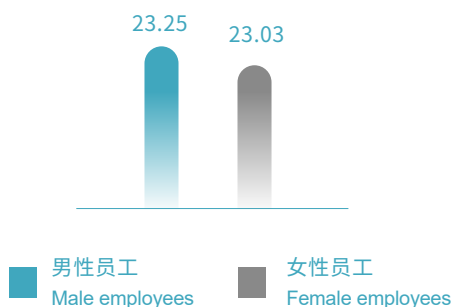
培训时长

**283,428.00** 小时

and the course length amounted to **283,428.00** hours

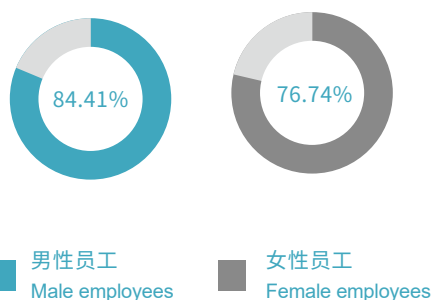
人均培训小时数 (小时)

Number of training hours per capita (hour)



按性别划分员工培训比例 (%)

Proportion of employee training by gender (%)



案例  
Case

## 中铝国际开展青年素养提升工程

CHALIECO conducts program to improve knowledge and skills of young employees

6月，中铝国际青年素养提升工程在长沙院召开，公司董事长李宜华为广大团员青年讲授“青年精神素养提升第一课”，为广大青年成长成才指明前进方向。

In June, CHALIECO conducted a program to improve knowledge and skills of young employees in CINP Engineering Corporation Limited. Li Yihua, Chairman of CHALIECO gave a lecture themed “first course of youth spiritual enhancement” to Communist Youth League of China (CYLC) members and young employees, pointing out the way forward for the youth to grow into high-caliber professionals.



青年素养提升工程现场

Program to improve knowledge and skills of young employees conducted by CHALIECO





# 健康与安全

## Health and Safety

中铝国际注重员工健康与安全，严格遵循《职业病防治法》《安全生产法》《生产安全事故应急条例》等相关法律法规，采取一系列措施保障员工身心健康；加强安全管理，筑牢安全防线，保证员工以健康的体魄和积极的心态投入工作。

We pay attention to the health and safety of our employees, and strictly abide by the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases*, the *Law of the People's Republic of China on Work Safety*, the *Regulations on Emergency Responses to Work Safety Accidents*, and other relevant laws and regulations. We have taken a series of measures to protect the physical and mental health of employees, strengthened safety management, built a solid safety line of defense, and ensured that our employees work with a healthy body and a positive attitude.

## 职业健康管理

### Enhancing Occupational Health Management

中铝国际不断优化职业健康管理体系，制订《安全环保健康责任规定》《职业健康安全委员会工作规则》，定期开展健康知识培训，落实员工健康体检、女性员工和特殊岗位专项体检及心理健康援助工作，严格做好疫情防控，及时发放防疫用品，全方位保卫员工的身心健康。

We have constantly refined the occupational health management system, and formulated the *Regulation on Safety, Environment, and Health Responsibility* and the *Work Rules of Occupational Health, Safety and Environmental Committee*. We have regularly conducted health knowledge training, carried out health checkups for employees, as well as special medical checkups for female employees and employees in special positions, and provided them with mental health assistance. We have strictly implemented pandemic prevention and control, provided prevention supplies for employees in a timely manner, and safeguarded the physical and mental health of employees in all aspects.

#### 案例 Case

关爱身心健康，天津建设开展年度员工体检  
CHALIECO (Tianjin) Construction Co., Ltd. organizes employees to conduct annual physical examination

8月，天津建设组织天津区域员工开展年度健康体检，通过全面细致的检查，达到疾病“早预防、早诊断、早治疗”的目的，切实保障员工身体健康。

In August, CHALIECO (Tianjin) Construction Co., Ltd. organized employees in Tianjin Municipality to conduct annual physical examination. Through comprehensive and detailed examination, we achieved the purpose of "early prevention, early diagnosis and early treatment" of diseases, and effectively protected the health of employees.



员工年度体检现场

Annual physical examination for employees

## 筑牢安全防线 Building Solid Line of Defense

中铝国际深入践行“一切风险皆可控制、一切事故皆可预防”的安全管理理念，不断完善优化安全生产管理体系和应急管理机制，开展系列隐患排查、安全培训、应急演练等活动，提升员工安全生产意识，切实保障员工生命安全。2022年，公司安全生产投入13,101.29万元。

We have implemented the safety management concept of “all risks can be controlled, and all accidents can be prevented” in a deep-going way, and constantly improved and optimized work safety management systems and emergency management mechanisms. A series of activities including hidden danger inspection, safety training, and emergency drill have been carried out to improve the work safety consciousness of employees and make sure their lives safe. In 2022, the investments in work safety of CHALIECO reached RMB131.0129 million.

### 加强安全管理 Strengthening Safety Management

中铝国际坚持 CAHSE 及 QHSE 体系并轨运行，将质量、健康、安全、环境纳入风险管控体系，开展企业自评、中铝集团和中铝国际分级审核、第三方外部审核，提高企业安全环保管理的制度化、规范化及体系化水平。

We have integrated the operation of the CAHSE management system and the HSE management system, and incorporated quality, health, safety and environment into the risk control system. We have conducted self-assessment activities, and assessment results have been reviewed by CHINALCO, CHALIECO and third-party organizations. Those efforts have improved the institutionalization, standardization and systematization of corporate safety and environmental management.

#### 强化制度体系 建设

Improving systems  
and mechanisms

公司制订《2022年安全环保工作要点》，对全年安全环保重点工作进行详细部署。

We formulated the *2022 Key Points of Safety and Environmental Protection Work*, and made detailed plans for the year's major work on safety and environmental protection.

#### 狠抓责任落实 考核

Enhancing  
responsibility  
implementation and  
evaluation

公司推进安全环保质量责任落实及考核，与各单位签订年度安全环保质量责任书，促进责任落实；编制修订2022年全员安全环保一岗双责清单，完善《六必须安全考核实施细则》，强化落实考核工作。

We promoted the implementation of responsibilities for safety, environmental protection, and quality, and all units signed written pledges to CHALIECO. We formulated and revised the list of safety and environmental protection responsibilities assumed by all employees while performing their own duties, and refined the *Rules for the Implementation of Safety Evaluation* to enhance the performance appraisal work.

## 开展隐患排查

### Conducting Potential Risk Inspection

中铝国际聚焦项目现场及生产一线，本着“一级督查一级”的原则，坚持开展公司专项督查及巡视巡查，组织开展重点项目、重点专业的专项排查，定期开展交叉互查工作，建立安全隐患排查的长效机制。

Insisting on the principle of level-by-level supervision, we have focused on project sites and front-line employees, and continuously conducted special inspection tours to inspect key projects and key fields. Cross-checks have been carried out regularly, and a long-term mechanism for the inspection of hidden safety risks has been established.

#### 案例 Case

#### 筑牢防线，长勘院扎实开展安全生产大检查活动

China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd. conducts work safety overhaul to build solid line of defense

9月，长勘院围绕安全风险辨识、安全隐患排查等要点，开展项目现场实地指导、督促及检查项目现场安全生产工作，提升从业人员安全意识，推动各生产单位全面落实安全生产责任。

In September, China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd., centering on safety risk identification, hidden safety risk inspection and other key points, guided project departments to strengthen safety precautions and conducted on-site inspections on work safety, aiming at improving the safety consciousness of employees and promoting all production units to full implement work safety responsibility.



长勘院检查组现场指导工作

An inspection team of China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd. guided the work on site



## 提升安全意识

### Improving Safety Consciousness

中铝国际以安全生产月等活动为抓手，深入开展安全法规培训、应急演练等活动，增强员工安全意识、提升员工安全能力、规范员工安全行为。2022年，参加安全生产培训员工55,301人次，安全培训覆盖率达100%。

Taking Work Safety Month and other safety activities as focal points, we have carried out training programs on work safety laws and regulations, emergency drills, and other activities in a deep-going way to enhance the safety consciousness of employees, improve their safety ability and regulate their safety behaviors. In 2022, a total of 55,301 person-times participated in work safety training programs, with a coverage of 100 percent.



#### 六冶洛阳公司举办安全生产月活动

Luoyang Co. of China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company held Work Safety Month activity



#### 九冶在宝鸡创新大厦项目举办应急演练观摩会

Jiuye Construction Co., Ltd. held an emergency drill at the project site of Innovation Tower in Baoji, Shaanxi Province



2022年，参加安全生产培训员工

**55,301** 人次

In 2022, a total of **55,301** person-times participated in work safety training programs



安全培训覆盖率达

**100%**

Safety training with a coverage of **100 percent**

## 员工关怀 Employee Care

中铝国际大力实施员工关爱工程，努力构建“阳光、坦诚、简单、友善”的员工关系。针对退休员工、困难员工、女性员工等不同群体制定多项关爱措施，注重员工工作与生活的平衡，组织开展丰富多样的员工活动，努力打造有温度的职场。2022年，公司建立“我为群众办实事”长效机制，员工对办实事满意度达到95%以上。

We have vigorously implemented employee care programs, and made great effort to establish the “bright, honest, simple, and friendly” employee relations. We have adopted a number of care measures for different groups such as retired employees, employees in difficulty and female employees, focused on the balance of work and life of employees, and carried out colorful and diversified employee activities, striving to create a heartwarming workplace. In 2022, we established a long-term mechanism to bring tangible benefits to the people, and the satisfaction of employees in this aspect reached over 95 percent.



满意度达到 **95%** 以上

the satisfaction of employees in this aspect reached over 95 percent.

## 慰问帮扶员工 Employee Assistance Programs

中铝国际在元旦、春节等节日期间组织慰问一线员工，为员工及其家属发放礼品、表达问候；用心用情做好困难员工关怀帮扶工作，有的放矢地将帮扶工作做到实处。

During the New Year's Day, Spring Festival and other holidays, we have paid visit to front-line employees, and presented gifts and sent greetings to employees and their families. We have tried the best to care about and help employees in difficulty, and carried out employee assistance programs in a targeted manner.



沈阳院慰问老专家

Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited visited veteran specialists



中色科技慰问离退休老同志

China Nonferrous Metals Processing Technology Co., Ltd. visited retired employees

## 工作与生活平衡

### Balance of Work and Life

中铝国际倡导员工工作与生活平衡，组织开展丰富多元的文娱活动，充实员工的业余文化生活，增进员工之间交流，增强员工的参与感、归属感与幸福感，营造温馨团结的工作氛围。

We advocate work and life balance for our employees, and have organized and carried out rich and diversified recreational activities to enrich the spare-time cultural life of employees, enhance exchanges among employees, improve their sense of participation, belonging and happiness, and create a warm and solidary working atmosphere.



中铝国际组织开展迎“三八”主题系列活动  
CHALIECO held a series of activities to celebrate the  
International Women's Day



贵阳院举办喜迎二十大篮球赛

Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited organized a basketball match for employees to celebrate the 20th National Congress of the CPC



长勘院成功举办“青春心向党、凝心齐聚力”  
员工运动会

China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd. held a staff sports meeting themed Party building and team spirit cultivation



# 05

## 伙伴责任

### RESPONSIBILITY FOR PARTNERS

#### 同行共进, 让力量汇聚

Gathering Strength to Achieve Win-Win Results

面对严峻复杂的国内外形势, 中铝国际坚持诚信经营、公平竞争, 加强供应商管理, 打造责任供应链, 不断深化与相关方的战略合作, 组织或参与行业交流, 不断扩大互惠共赢的“朋友圈”, 为构建命运共同体贡献力量。

In the face of challenging and complex environments both at home and abroad, we have conducted business in good faith, insisted on fair competition, enhanced supplier management, and built a responsible supply chain. We have continuously deepened strategic cooperation relations with relevant parties, organized or participated in industry exchange activities, and constantly enlarged the circle of friends featuring mutual benefits and win-win results, contributing to the building of a community with a shared future.







## 责任供应链

### Responsible Supply Chain

中铝国际坚持规范采购，不断完善采购流程，重视对供应商、分包商的责任管理，促进供应商履行社会责任，打造安全、绿色、高质量发展的有色金属产业链。

We have insisted on regulated procurement, constantly refined procurement process, focused on the responsibility management of suppliers and subcontractors, and promoted suppliers to fulfill social responsibilities, striving to build a safe, green and high-quality nonferrous metals industry chain.



## 实施阳光采购

### Transparent Procurement

中铝国际遵守《招标投标法》《反不正当竞争法》等国家法律法规，制定了工程招投标实施细则及相关管理监督办法，规范公司及下属企业采购管理，明确采购原则及流程。通过对所属成员企业开展招投标检查、宣贯招投标法规及制度、定期组织自查自纠等工作，加强招投标管理。2022年，中铝国际对全部12家成员企业开展工程建设领域招投标专项检查，相关企业及时开展整改工作。

We abide by the *Bidding Law of the People's Republic of China*, the *Anti-Unfair Competition Law of the People's Republic of China*, and other relevant national laws and regulation, and have formulated the implementation rules of project bidding and related management and supervision methods to regulate the procurement management of CHALIECO and its affiliated enterprises, and clarify the procurement principles and processes. We have strengthened bidding management by conducting bidding inspections of member enterprises, disseminating bidding regulations and systems, and organizing regular self-examination and self-correction. In 2022, CHALIECO conducted special inspections of bidding in the field of engineering construction for all 12 member enterprises, and the rectification work was carried out in a timely manner.

## 供应商管理

### Supplier Management

中铝国际加强供应商管理，持续完善供应商管理体系，公司及各成员企业修订完善《供应商管理办法》《分包商管理规定》等，规范供应商准入、评价、退出等三个管理环节，降低供应链风险。

We have strengthened supplier management, and constantly improved the supplier management system. CHALIECO and its member enterprises have revised and refined the *Administrative Measures on Suppliers*, the *Regulation on Subcontractor Management* and other rules and regulations to regulate the three links of supplier access, evaluation and withdrawal and reduce risks of supply chain.



**准入:** 公司要求供应商提供 QHSE 管理体系与认证文件; 并优先考虑使用环保节能产品的供应商。  
**Access:**

The Company requires suppliers to provide QHSE management system and certification documents, and gives priority to suppliers who use environmentally-friendly and energy-saving products.

**评价:** 在生产施工期间, 公司通过分包商过程管控及奖惩考核机制, 对分包商队伍资质、能力、信誉、素质等进行综合考评, 动态调整合格分包商名录; 将分包商纳入项目安全环保教育培训管理中, 定期组织考评, 敦促分包商落实好现场安全环保责任。  
**Evaluation:**

During the production and construction period, the Company, through the subcontractor process control and the reward and punishment assessment mechanisms, conducts comprehensive evaluation on subcontractors' qualification, capability, reputation and quality, and dynamically adjusts the list of qualified subcontractors. The Company integrates subcontractors into the project safety and environmental protection education and training system, organizes regular evaluation, and urges subcontractors to implement on-site safety and environmental protection responsibilities.

**退出:** 公司对分包商用工管理、安全环保工作落实情况进行监管, 对有违反法律规定的用工行为、发生突发性环境事件的分包商等, 将对其清退并列入黑名单。  
**Withdrawal:**

The Company supervises the management of subcontractors' employment and the implementation of safety and environmental protection. Subcontractors who have violated the laws and regulations on employment and those who have had environmental emergencies will be removed and blacklisted.

2022 年供应商数目 (个)

总计 **5,267**

Number of suppliers in 2022 (nos.)

5,267 suppliers in total

东北 <b>187</b> Northeast China	华北 <b>512</b> North China	华南 <b>583</b> South China	华中 <b>1,343</b> Central China	华西 <b>1,535</b> West China	华东 <b>1,107</b> East China
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# 战略合作

## Strategic Cooperation

中铝国际致力于搭建战略共享机制和平台，坚定构建长期性、战略性协同发展的伙伴关系，拓展与政府、企业、科研院所及高校的合作，携手谱写互惠共赢的合作新篇章。

We have been committed to building strategic sharing mechanisms and platforms, insisted on building long-term, strategic partnerships for coordinated development, and expanded cooperation with governments, enterprises, research institutes, colleges and universities, working together to write a new chapter of mutually beneficial and win-win cooperation.



中铝国际与国核电力院签订战略合作框架协议

CHALIECO signed a strategic cooperation framework agreement with State Nuclear Electric Power Planning Design & Research Institute Co., Ltd.



沈阳院与国家电投集团铝电投资有限公司签订战略合作协议

Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited signed a strategic cooperation framework agreement with State Power Investment Group Aluminum Investment Co., Ltd.



# 行业共建

## Joint Efforts for Industry Development

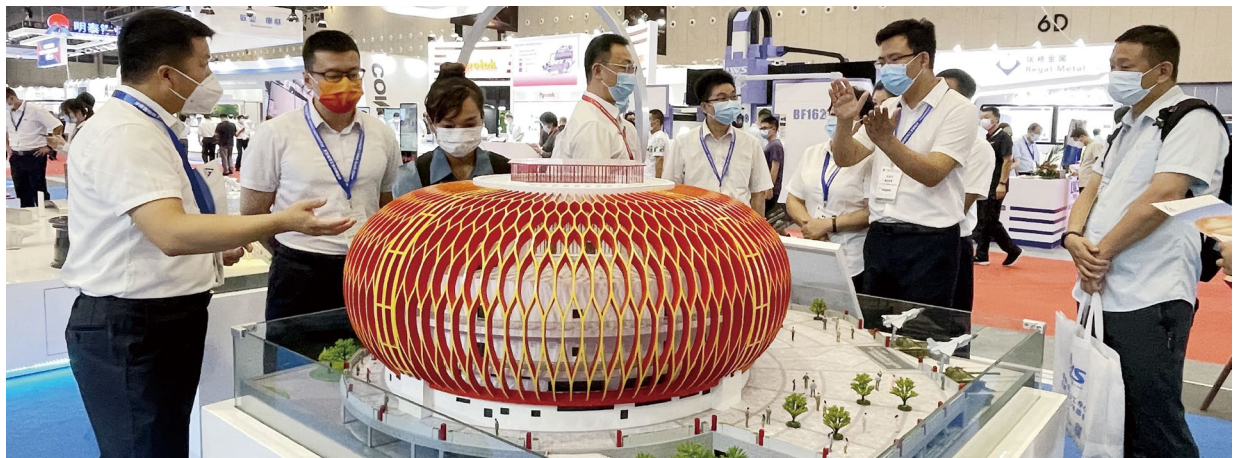
中铝国际不断深化国内外、行业内外合作交流，积极主动加强与多方的沟通，探索多方合作路径，凝聚合作共识，持续提升行业影响力和话语权。

We have continuously deepened cooperation and exchanges at home and abroad, as well as inside and outside the industry, actively strengthened communication with various parties, explored multiple cooperation paths, further consolidated cooperation consensus, and continued to increase our influence and voice in the industry.



中铝国际参加 P20 中国建造（2022）管理创新峰会

CHALIECO participated in the P20 China Construction (2022) Management Innovation Summit



六冶铝应用拳头产品亮相 2022 华南国际铝工业展览会

Hit products for aluminum application developed by China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company were displayed at the Aluminum China-South China 2022



# 06

## 公共责任

RESPONSIBILITY FOR THE COMMUNITY

### 大爱无疆, 让温暖传递

Contributing to Society with Great Love

中铝国际始终坚持企业发展与服务社会同频共振, 聚焦民生领域, 用实干精神扎实推进乡村振兴, 主动作为造福一方百姓; 积极开展志愿者活动, 用实际行动践行央企担当; 深耕“一带一路”, 追求企业与所在区域共同发展和成长, 以真情和真心铺筑万家幸福路。

We have always been committed to promoting corporate development while serving the society, focused on improving the people's livelihood, effectively and pragmatically advanced rural revitalization, and taken the initiative to benefit local people. We have actively carried out volunteer activities, using practical actions to assume the responsibilities of a central state-owned enterprise. We have intensified our efforts to promote the Belt and Road Initiative, and strived to pursue the common development and growth of the enterprise and the region where the business is conducted, paving a road to happiness for all of the people.



1 无贫穷



2 零饥饿



3 良好  
健康与福祉



4 优质教育









# 乡村振兴

## Rural Revitalization

中铝国际牢记初心使命，认真贯彻习近平总书记重要指示批示精神，按照中铝集团的统筹安排，积极投身乡村振兴，履行社会责任担当。2022 年，中铝国际各成员企业乡村振兴项目投入 254.14 万元，项目惠及 10,734 人。

Keeping the original aspiration and mission firmly in mind, we have earnestly implemented General Secretary Xi Jinping's important remarks and instructions on the work. According to the unified arrangement of CHINALCO, we will actively participate in rural revitalization and fulfill our social responsibilities. In 2022, the investments in rural revitalization projects of CHALIECO and its member enterprises reached RMB2.5414 million, benefiting 10,734 people.



2022 年，中铝国际各成员企业乡村振兴项目投入

**254.14** 万元

In 2022, the investments in rural revitalization projects of CHALIECO and its member enterprises reached RMB**2.5414** million



项目惠及

**10,734** 人

benefiting **10,734** people

### 案例

#### Case

科技赋能，长沙院灌溉方案助力乡村振兴建设

The irrigation project of CINF Engineering Corporation Limited facilitates rural revitalization

6 月，长沙院设计的光伏灌溉项目在广西克长乡梅达村的特色种植试点基地投入使用。该项目采用“光伏发电 + 潜水泵 + 储水罐”灌溉方案新理念，具有绿色环保、能源转化利用率高、可行性强等优势，解决了当地庄稼地的灌溉难题，为乡村振兴建设带来切实成效。

In June, PV-based irrigation project designed by CINF Engineering Corporation Limited was put into use in the featured planting base in Meida Village of Kechang Township, Guangxi Zhuang Autonomous Region. The project adopted the new concept of "PV power generation + submerged pumps + water storage tanks" irrigation scheme, which boasts the advantages of environment protection, efficient energy conversion and utilization, and strong feasibility, solving the irrigation problems of local crops and bringing practical results for rural revitalization.



长沙院光伏灌溉项目建成落地

The PV-based irrigation project designed by CINF Engineering Corporation Limited



## 案例 Case

### 打造示范，中色科技助力云南茶腊村

China Nonferrous Metals Processing Technology Co., Ltd. builds demonstration project for rural revitalization

中色科技积极响应国家乡村振兴战略，采取“基础设施+产业发展+文化振兴+动力提升”的综合帮扶举措，承建“丙中洛镇茶腊乡村振兴示范村项目”。2022年，茶腊村项目基础设施逐渐完善，带动当地村民就业增收的同时，助力怒族传统文化传承发展。

China Nonferrous Metals Processing Technology Co., Ltd. actively responded to the national strategy of rural revitalization and adopted the comprehensive assistance initiative of “infrastructure + industry development + cultural revitalization + ability enhancement” to undertake the Rural Revitalization Chala Village Demonstration Project in Bingzhongluo Township, Yunnan Province. In 2022, the infrastructure facilities of Chala Village were gradually improved, which not only facilitated the inheritance and development of the traditional culture of Nu people, but also created job opportunities for local villagers and thus increased their income.



### 茶腊村怒族文化特色村落

Chala Village with the characteristics of Nu people culture

“茶腊村地处怒江大峡谷山谷之中，以前我们村碰上下雨天，路都变成烂泥路，如今的茶腊村进村的路都铺上了水泥和特色石板，我们有休闲鱼塘、游客服务中心、高端民宿……其他村子的人都可羡慕我们啦！”

“Chala Village is located in the valley of the Nujiang River Grand Canyon. In the past, when it rained in our village, the roads became muddy, but now the roads to and in the village are paved with cement and special stone slabs. We have a recreational fish pond, a visitor service center, a high-end B&B……People from other villages are very jealous of us!”

——茶腊村村民李向  
— Li Xiang, a villager of Chala

# 志愿服务 Volunteer Services

中铝国际秉持爱心向善的初心，持续组织对外捐赠工作和公益志愿服务，全面推进公益慈善事业品牌化发展，鼓励下属企业开展公益助学、爱心捐赠等公益活动。截至 2022 年末，中铝国际注册青年志愿者 1,066 人，年度志愿者服务总时长 3,605 小时，企业捐赠总额为 8.7 万元。

Keeping the original aspiration of serving the society in mind, we have continued to organize external donations and conduct public welfare volunteer services, comprehensively promoting the brand of our public welfare causes. We have encouraged our affiliated enterprises to carry out educational assistance programs, donations and charitable activities. As of the end of 2022, the number of registered youth volunteers had reached 1,066 people, with 3,605 hours of volunteer services cumulatively. The total donations by the Company amounted to RMB87,000 in 2022.

注册青年志愿者

**1,066** 人

the number of registered youth volunteers had reached **1,066** people

企业捐赠总额为

**8.7** 万元

The total donations by the Company amounted to **RMB87,000**



案例  
Case

守护春苗，贵阳院赴小学进行爱心帮扶活动  
Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited conducts educational assistance program

“六一”国际儿童节到来之际，贵阳院前往贵阳大地村小学进行“大爱无疆、共护春苗”爱心帮扶活动，向全校同学捐赠物资，与师生们共度“六一”。截至 2022 年，贵阳院冶金青年志愿服务队定点帮扶贵阳大地村小学已长达十载，被评为中铝集团优秀青年志愿服务队。

Upon the arrival of the International Children's Day on June 1, Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited visited the Dadi Primary School to conducted an educational assistance activity themed "boundless love for pupils." The institute donated school supplies and other materials to the school and celebrated the International Children's Day with teachers and students. By 2022, the youth volunteer service team of the institute had conducted paired-up assistance for the school for 10 years. With those efforts, the volunteer service team was recognized as an outstanding team by CHINALCO.



长勘院青年志愿者联合当地社区为金婚、银婚夫妻拍摄免费婚纱照

Youth volunteers of China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd. worked with local communities to take free wedding photos for golden and silver wedding couples



十二冶志愿者化身“白袍战士”配合社区疫情防控

Volunteers of China Nonferrous Metal Industrial No. 12 Metallurgy Construction Company worked with local communities to carry out pandemic prevention and control

公司积极响应国家号召，践行中央企业责任，强化社会责任建设，助力中小企业纾困等款项清付工作，2022 年支出同比增加 16 亿元。

The company actively responded to the call of the state, practiced the central corporate responsibility, strengthened the construction of social responsibility, and helped small and medium-sized enterprises to bail out and other payments. In 2022, the expenditure increased by 1.6 billion yuan year-on-year.

## 海外履责

### Overseas Responsibility Fulfillment

中铝国际积极践行“走出去”战略和“一带一路”倡议，充分利用国内外两个市场两种资源，以优质工程为美丽世界添砖加瓦；以海外项目建设为载体，推进海外用工本地化，积极履行海外社会责任，以实际行动造福当地员工。

We have taken the initiative to implement the “going global” strategy and promote the Belt and Road Initiative, and made better use of both international and domestic markets and resources, contributing to the building of a beautiful world with high-quality projects. Taking the construction of overseas projects as a platform, we have further implemented the localized employment in overseas market, and actively fulfilled overseas social responsibilities, benefiting local employees with practical actions.

## 拓展境外业务

### Expanding Overseas Business

中铝国际不断加大海外市场资源投入，推动重大项目合作进程，年内签署多项重大海外勘察设计公司，如印尼 LEI 湿法 HPAL 项目、美国 ANOVION 石墨化车间项目、印度 JSG 熔铸项目等；重构海外业务发展中心、重建驻海外营销机构，初步形成“1+N+1”海外营销体系。

We have continuously increased investment of resources in overseas market, and promoted the cooperation of major projects with various parties. In 2022, CHALIECO signed a number of important survey and design projects in overseas market such as LEI's high pressure acid leach (HPAL) wet process plant project in Indonesia, Anovion's graphitization plant project in the United States, and JSG's melting and casting project in India. We have restructured the overseas business development centers and rebuilt the overseas marketing institutions, preliminarily established the “1+N+1” overseas marketing system.





**案例**  
Case**践行“科技 + 国际”，贵阳院积极开拓国际市场**

Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited expands international market with development strategy of “S&T + Internationalization”

贵阳院践行“科技 + 国际”发展战略，以一系列技术“专利群”，抢抓各海外区域市场，新签中亚区域市场的电极、电解铝、电解余热利用、脱硫项目及印度区域市场的铝加工项目等多份合同，合同金额超 2,000 万人民币，逐步成长为在国际上具有实力的铝工业技术输出商、供应商。

Insisting on the development strategy of “S&T + Internationalization,” Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited vigorously developed regional overseas markets with a series of technology patents. The newly signed contracts covered electrode, electrolytic aluminum, electrolytic waste heat utilization, desulfurization projects in central Asia and the aluminum processing project in India, with total contract value of over RMB20 million. The institute has gradually become a leading supplier for aluminum industry technologies in international market.



**印尼 Pertamina 石油焦煅烧项目交流**

Exchange activity on Pertamina petroleum coke calcination project in Indonesia

## 海外员工关爱

### Caring about Overseas Employees

中铝国际关注海外员工的生活状况和身心健康，重点关爱员工及其家庭生活情况，关照困难员工；严格按照公司安全管理要求，保证现场施工人员生命安全；严格按照我国和当地防疫政策要求，保证出国人员疫苗接种率，并定期为员工发放防疫用品。

We have paid attention to the living environments and physical and mental health of our overseas employees, and focused on serving our employees and their families, as well as taking care of employees in difficulty. According to the safety management requirements, we have taken effective measures to ensure the life safety of construction workers. We have strictly followed the requirements of China's pandemic prevention and control policies, as well as those adopted by the countries and regions where our business is conducted, ensured the vaccination rate of the employees working abroad, and distributed pandemic prevention supplies to employees in a regular manner.

#### 案例 Case

#### 温暖后方，六冶慰问海外员工家属

“Warmth Project” created by China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company for families of overseas employees

为切实做好海外员工关心关爱工作，六冶在节假日期间开展慰问海外员工家属活动，全力为海外员工解除后顾之忧。

To effectively enhance overseas employee care, China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company paid visits to the families of overseas employees during holidays, and made every effort to relieve the worries of overseas employees.



#### 六冶中秋慰问海外员工家属

China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company visited the families of overseas employees

# 未来展望

## Future Prospect

百舸争流，奋楫者先；

千帆竞发，勇进者胜。

**In a boat race, those who row the hardest will win.  
Success only favors those who boldly forge ahead.**

2023 年是全面落实党的二十大精神开局之年，是中铝国际落实高质量发展战略关键的一年。站在新的起点上，中铝国际继续坚持以习近平新时代中国特色社会主义思想为指导，深入学习宣传二十大精神，牢记“国之大者”，坚持“科技+国际”的发展战略，着重增强企业“竞争力”“创新力”“控制力”“影响力”“抗风险能力”，努力建设国内一流、全球有核心竞争力的有色金属工程技术公司，努力成为有色行业技术引领者、有色工程建设主力军、基础设施及民用工程建设生力军。

The year 2023 is the first year to fully implement the guiding principles of the 20th National Congress of the CPC, and is also crucial for CHALIECO to implement the high-quality development strategy. Standing at the new starting point, we will, as always, follow the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, and strive to gain a command of, publicize and act on the guidelines laid out at the 20th Congress. Bearing in mind the country's most fundamental interests, we will continue to implement the development strategy of "S&T + Internationalization," and focus on making the Company more competitive, innovative, risk-resilient, and capable of exerting a greater level of influence and control over the economy. We will work hard to build CHALIECO into a leading domestic engineering technology company with core international competitiveness in nonferrous metals industry, as well as the technology leader of nonferrous metals industry, the main force for nonferrous engineering construction, and the new force for infrastructure and civil engineering construction.





# 附录

## Appendix

### 关键绩效

### Key Performance Indicators

指标 Indicators	2020	2021	2022
<b>经济责任 Economic responsibility</b>			
总资产 (万元) Total assets (RMB10,000)	5,593,193.83	6,002,275.67	4,739,128.86
净资产 (万元) Net assets (RMB10,000)	1,564,907.86	1,636,472.27	1,045,505.73
营业收入 (万元) Operating revenue (RMB10,000)	2,471,782.33	2,389,872.34	2,369,732.89
纳税总额 (万元) Total tax payment (RMB10,000)	82,354.51	74,618.03	82,344.74
研发资金投入 (万元) Investments in R&D (RMB10,000)	60,416.00	76,012.72	91,206.62
研发人员数量 (人) Number of R&D personnel (person)	2,286	2,584	2,479
累计有效专利数 (件) Cumulative number of valid patents (piece)	2,240	2,406	2,832
其中: 发明专利 (件) Among which: Patents for inventions (piece)	1,029	1,061	1,120
完成专利受理 (件) Number of patent applications accepted (piece)	317	313	381
其中: 发明专利 (件) Among which: Patents for inventions (piece)	154	133	176
新增专利授权 (件) Number of newly added authorized patents (piece)	240	303	312
其中: 发明专利 (件) Among which: Patents for inventions (piece)	42	65	80
企业规章制度法律审核率 (%) Legal review rate of corporate rules and regulations (%)	100	100	100
企业经济合同法律审核率 (%) Legal review rate of corporate business contracts (%)	100	100	100
企业重要经济决策法律审核率 (%) Legal review rate of important corporate business decisions (%)	100	100	100
守法合规培训次数 (次) Number of legal compliance training sessions (time)	6	8	18
守法合规培训时长 (小时) Number of hours for legal compliance training (hour)	26	30	36
召开董事会 (次) Number of board meetings held (time)	7	6	12

指标 Indicators	2020	2021	2022
召开股东大会 (次) Number of general shareholders' meetings held (time)	3	3	3
供应商总数 (个) Number of suppliers (nos.)	5,169	4,272	5,267
因社会责任不合规被否决的潜在供应商数量 (个) Number of potential suppliers rejected for non-compliance of social responsibility (nos.)	62	26	8
报告期内审查的供应商数量 (个) Number of suppliers reviewed during the reporting period (nos.)	5,169	4,272	5,267
因社会责任不合规被中止合作的供应商数量 (个) Number of suppliers suspended for non-compliance of social responsibility (nos.)	0	0	0
供应商社会责任 /ESG 培训次数 (次) Number of CSR/ESG trainings for suppliers (nos.)	0	0	0
投诉解决率 (%) Complaint resolution rate (%)	100	100	100
<b>社会 Social responsibility</b>			
员工人数 (人) Number of employees (person)	14,633	12,489	12,219
报告期内吸纳就业人数 (人) Number of newly recruited employees during the reporting period (person)	905	30	76
体检覆盖率 (%) Coverage of physical examination for employees (%)	100	100	100
健康档案覆盖率 (%) Coverage of health record (%)	100	100	100
劳动合同签订率 (%) Signing rate of employment contracts (%)	100	100	100
集体合同覆盖率 (%) Coverage of collective contracts (%)	100	100	100
社会保险覆盖率 (%) Coverage of social insurance (%)	100	100	100
通过申诉机制申请、处理和解决的员工申诉数量 (个) Number of employee complaints filed, handled and solved through complaint mechanism (nos.)	0	0	0
女性管理者人数 (人) Number of female managers (person)	1,367	1,410	1,441
中层管理者中女性管理者占比 (%) Proportion of female managers in middle management (%)	29	31	31.66
少数民族员工占比 (%) Proportion of ethnic minority employees (%)	4.42	4.59	4.56
本地化雇佣比例 (%) Localized employment rate (%)	81	86	88
人均带薪休假天数 (天) Days of paid leaves per capita (day)	10.25	10.00	10.49
员工培训投入 (万元) Investments in employee training (RMB10,000)	921.38	880.62	738.19

指标 Indicators	2020	2021	2022
员工培训人次 (人次) Number of participants of employee training (person-time)	12,546	29,971	28,686
员工培训时长 (小时) Number of hours for employee training (hour)	108,838.60	123,629.80	283,428.00
员工薪酬同比增长 (%) YOY growth of employee compensation (%)	2.90	1.77	3
残疾人雇用人数 (人) Number of people with disabilities employed (person)	88	85	78
安全教育与培训人次 (人次) Number of participants in safety education and training (person-time)	52,685	54,560	55,301
安全教育与培训时长 (小时) Number of hours for safety education and training (hour)	96,855	98,650	99,285
安全生产事故数 (件) Number of work safety accidents (time)	1	0	1
因工伤损失工作日数 (天) Lost days due to work injury (day)	6,000	0	6,106
轻伤 / 重伤人数 (人) Number of people suffering minor/serious injuries (person)	-	-	1
员工群众来访接待率 (%) Reception rate of visits of employees and other stakeholders (%)	100	100	100
来信来函受理率 (%) Handing rate of letters and mails (%)	100	100	100
慈善捐助总额 (万元) Total charitable donations (RMB10,000)	38	154.44	8.7
<b>环境 Environmental responsibility</b>			
环保总投入 (万元) Investments in environmental protection (RMB10,000)	3,015.29	12,807.37	3,423.10
能源消耗总量 (吨标准煤) Total energy consumption (tce)	33,013.92	35,279.40	11,362.05
万元营收能源消耗强度 (吨标准煤 / 万元) Energy consumption intensity per RMB10,000 of operating revenue (tce/RMB10,000)	0.0143	0.0151	0.0462
燃油使用量 (升) Fuel oil consumption (liter)	18,027,118.00	19,886,004.90	38,462.46
汽油使用量 (升) Gasoline consumption (liter)	2,983,202.00	3,292,824.40	1,882,071.76
柴油使用量 (升) Diesel consumption (liter)	15,043,916.00	16,593,180.50	2,044,766.46
天然气使用量 (立方米) Natural gas consumption (m <sup>3</sup> )	593,600.00	346,075.00	223,793.16
用电量 (万千瓦时) Electricity consumption (10,000 kWh)	8,273.92	8,534.90	5,418.74
总用水量 (吨) Total water consumption (ton)	897,349.00	725,006.00	199,459.76
用水强度 (吨 / 万元) Water consumption intensity (ton/RMB10,000)	0.39	0.31	0.68
无害废弃物排放量 (吨) (厨余垃圾、建筑垃圾等) Discharge of non-hazardous waste (ton) (kitchen waste, construction waste, etc.)	4,399.73	4,639.57	730.5



指标 Indicators	2020	2021	2022
万元营收无害废弃物排放强度 (吨 / 万元) Non-hazardous waste discharge intensity per RMB10,000 of operating revenue (ton/RMB10,000)	0.0018	0.0019	0.0003
有害废弃物排放量 (吨) (硒鼓、废弃灯管等) Discharge of hazardous waste (ton) (toner cartridges, damaged light tubes, etc.)	1.15	2.53	0.17
万元营收有害废弃物排放强度 (吨 / 万元) Hazardous waste discharge intensity per RMB10,000 of operating revenue (ton/RMB10,000)	$4.65 \times 10^{-7}$	$1.06 \times 10^{-6}$	$7.17 \times 10^{-8}$
环保培训人次 (人次) Number of participants in environmental protection training (person-time)	12,866	13,588	13,999
环保培训覆盖率 (%) Coverage of environmental protection training (%)	29	31	33
万元产值能耗 (吨标煤 / 万元产值) Energy consumption per RMB10,000 output value (tce/ RMB10,000 output value)	0.0386	0.0356	0.0288
年度能总量 (吨标准煤) Annual total energy saved (tce)	30	35	41
年度新鲜水用水量 (吨) Annual fresh water consumption (ton)	15,676	16,859	142,463
再生水使用量 (吨) Amount of reclaimed water used (ton)	3,865	3,999	4,406
工业固体废弃物重复利用率 (%) Industrial solid waste reuse rate (%)	100	100	100
固废处置合规率 (%) Compliance rate of solid waste disposal (%)	100	100	100
主要污染物排放达标率 (%) Compliance rate of major pollutant emissions (%)	100	100	100
办公用电量 (万千瓦时) Electricity used in office buildings (10,000 kWh)	8,273.92	8,534.90	7,230.48
办公用水量 (万吨) Water used in office buildings (10,000 tons)	89.73	72.50	70.23

# 指标索引

## Index Guide

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<sup>2</sup> 我们遵循港交所《环境、社会及管治报告指引》“不遵守就解释”条文，对未披露指标 A1.2、A1.5、A2.5、B6.1、B6.3 做出如下解释：

We abide by the provisions of “comply or explain” under the Environmental, Social and Governance (ESG) Reporting Guide of the Stock Exchange of Hong Kong Limited. The undisclosed indicators in A1.2, A1.5, A2.5, B6.1 and B6.3 are explained as follows:

①受业务性质及业务范围影响，A1.2、A1.5 条款暂未统计，未来，公司将持续推进排放物管理提升工作；

Affected by the nature and scope of business, A1.2 and A1.5 clauses have not been counted temporarily; in the future, the Company will continue to enhance emissions management

②公司业务不适用 A2.5、B6.1、B6.3 条款。

A2.5, B6.1 and B6.3 clauses do not apply to the business of the Company.

<sup>3</sup> 《上海证券交易所上市公司自律监管指引第 1 号——规范运作》简称《指引》

Guidelines No. 1 of the Shanghai Stock Exchange (SSE) on the Application of Self-Regulation Rules for Listed Companies – Standard Operation is referred to as “SSE Guidelines”

目录 Contents	港交所 ESG 指引 <sup>2</sup> HKEX ESG Guide	上交所指引 <sup>3</sup> SSE Guidelines	CASS-ESG5.0	
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# 释义

## Terms and Abbreviations

全称 Full name	简称 Abbreviated name
中国铝业集团有限公司 Aluminum Corporation of China	集团 CHINALCO
沈阳铝镁设计研究院有限公司 Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited	沈阳院 SAMI
贵阳铝镁设计研究院有限公司 Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited	贵阳院 GAMI
长沙有色冶金设计研究院有限公司 CINF Engineering Corporation Limited	长沙院 CINF
中色科技股份有限公司 China Nonferrous Metals Processing Technology Co., Ltd.	中色科技 CNPT
中国有色金属长沙勘察设计院有限公司 China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd.	长勘院 China Nonferrous Metal Changsha Survey and Design Institute
中国有色金属工业昆明勘察设计院有限公司 Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd.	昆勘院 Kunming Prospecting Design Institute
昆明有色冶金设计研究院股份公司 Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd.	昆明院 Kunming Nonferrous Metallurgy Design and Research Institute
中国有色金属工业第六冶金建设有限公司 China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company	六冶 China Nonferrous Metal Industrial No. 6 Metallurgy Construction
九冶建设有限公司 Jiuye Construction Co., Ltd.	九冶 Jiuye Construction
中色十二冶金建设有限公司 China Nonferrous Metal Industrial No. 12 Metallurgy Construction Company	十二冶 China Nonferrous Metal Industrial No. 12 Metallurgy Construction
中铝山东工程技术有限公司 China Aluminum Shandong Engineering Technology Co., Ltd.	山东工程 Shandong Engineering
中铝国际（天津）建设有限公司 CHALIECO (Tianjin) Construction Co., Ltd.	天津建设 Tianjin Construction

# 报告评级

## Rating Report



中国企业社会责任报告  
评级专家委员会  
Chinese Expert Committee on CSR Report Rating

### 《中铝国际工程股份有限公司 2022 环境、社会及管治报告》评级报告

受中铝国际工程股份有限公司委托，“中国企业社会责任报告评级专家委员会”抽选专家组成评级小组，对《中铝国际工程股份有限公司 2022 环境、社会及管治报告》（以下简称《报告》）进行评级。

#### 一、评级依据

中国社会科学院《中国企业社会责任报告指南（CASS-CSR 4.0）之工程与建筑业》暨“中国企业社会责任报告评级专家委员会”《中国企业社会责任报告评级标准（2020）》。

#### 二、评级过程

1. 评级小组审核确认《报告》编写组提交的《企业社会责任报告过程性资料确认书》及相关证明材料；
2. 评级小组对《报告》编写过程及内容进行评价，拟定评级报告；
3. 评级专家委员会副主席、评级小组组长、评级小组专家共同签署评级报告。

#### 三、评级结论

##### 过程性 (★★★★☆)

公司成立社会责任工作领导小组，党委书记、董事长担任组长，总裁担任常务副组长，领导班子其他成员以及有关人员担任副组长，统筹规划公司社会责任工作的实施，领导小组下设办公室，负责社会责任的日常工作；将报告定位为合规披露履责信息、完善社会责任管理、强化利益相关方沟通、提升品牌形象的重要工具，功能价值定位明确；结合国际国内社会责任标准、行业对标分析、利益相关方调查等识别实质性议题；修订《中铝国际工程股份有限公司社会责任管理模块及负面清单》《中铝国际工程股份有限公司社会责任工作实施细则》，完善社会责任工作顶层设计；计划通过中铝集团社会责任报告集中发布活动发布报告，并将以电子版、印刷品的形式呈现报告，过程性表现领先。

##### 实质性 (★★★★☆)

《报告》披露了项目质量管理、产品创新、承包商管理制度与措施、安全生产、建筑垃圾管理等所在行业关键性议题，叙述详细充分，实质性表现领先。

##### 完整性 (★★★★)

《报告》主体内容从“经济责任”“客户责任”“环境责任”“员工责任”“伙伴责任”“公共责任”等角度系统披露了所在行业核心指标的 78.91%，具有优秀的完整性表现。

##### 平衡性 (★★★★)

《报告》披露了“轻伤/重伤人数”“安全生产事故数”“员工流失率”“因工伤损失工作日数”“突发环境事件”等负面数据信息，具有优秀的平衡性表现。

##### 可比性 (★★★★)

《报告》披露了“总资产”“纳税总额”“员工人数”“慈善捐助总额”“环保总投入”“万元产值能耗”等 78 个关键指标连续 3 年的对比数据，

并通过“位居 2022 北京上市公司 100 强第 81 位”等进行横向比较，可比性表现卓越。

##### 可读性 (★★★★)

《报告》采用议题型框架结构，从六大篇章系统展示企业对政府、客户、环境、员工、伙伴、社区等利益相关方的履责行动与成效，详细回应利益相关方的期望与诉求；封面及章节页选用多帧亮点项目实景图，凸显行业特色，增强了报告的辨识度与感染力；设置“中铝国际责任数字”版块，集中呈现年度亮点绩效；引入利益相关方证言佐证履责成效，可读性表现卓越。

##### 创新性 (★★★★☆)

《报告》开篇设置“责任专题：聚焦‘从 0 到 1’，培育核心技术”，突出企业重点科技创新成果，彰显了中央企业的责任担当；积极响应联合国可持续发展目标（SDGs），展示具体目标下的责任行动，凸显了企业的价值追求；首次参与第三方报告评级，增强了信息披露的规范性，推动提升报告管理水平，具有领先的创新性表现。

##### 综合评级 (★★★★☆)

经评级小组评价，《中铝国际工程股份有限公司 2022 环境、社会及管治报告》为四星半级，是一份领先的 ESG 报告。

#### 四、改进建议

1. 增加行业核心指标的披露，提高报告的完整性；
2. 增强报告内容和设计的表现形式，进一步提升报告的创新性。

黄群慧

评级专家委员会副主席

张真

评级小组组长

魏秀丽

评级小组专家



出具时间：2023 年 3 月 6 日

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中国企业社会责任报告  
评级专家委员会  
Chinese Expert Committee on CSR Report Rating

## Rating Report of 2022 Environmental, Social and Governance Report of China Aluminum International Engineering Corporation Limited

Upon the request of China Aluminum International Engineering Corporation Limited, the Chinese Expert Committee on CSR Report Rating invited experts to form a rating panel to rate the 2022 *Environmental, Social and Governance Report of China Aluminum International Engineering Corporation Limited* (hereinafter referred to as "the Report").

### I. Rating Criteria

*Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises – Engineering and Construction Industry (CASS-CSR 4.0)* by the Chinese Academy of Social Sciences, and *Rating Standards for Corporate Social Responsibility Reporting in China (2020)* by the Chinese Expert Committee on CSR Report Rating.

### II. Rating Process

1. The rating panel reviews and confirms the *Confirmation Letter on Process Materials of Corporate Social Responsibility Reporting* and associated materials submitted by the preparation team of the Report;
2. The rating panel conducts rating on the preparation process and the contents disclosed by the Report, drafting rating report.
3. The vice chairman of Chinese Expert Committee on CSR Report Rating, the leader of the rating team, and the expert of the rating panel jointly review and sign the rating report.

### III. Rating Result

#### Process (★★★★☆)

China Aluminum International Engineering Corporation Limited established a leading group for social responsibility work, with the Party Secretary and Chairman of the Company as the head, the President as the executive deputy head, and the members of the leadership team and relevant personnel as deputy heads. The leading group was responsible for the overall planning for the implementation of social responsibility work, while the office under the leading group was responsible for the day-to-day social responsibility work. The Report was positioned as an important tool to disclose social responsibility performance information in accordance with the requirements of regulators, strengthen social responsibility management, enhance communication with stakeholders, and improve brand image, showing clear functional value. The material issues were identified in accordance with, among others, international and domestic standards of social responsibility, industrial benchmark analysis, and stakeholder survey. *Social Responsibility Management Modules and Negative List of China Aluminum International Engineering Corporation Limited and Implementation Rules of China Aluminum International Engineering Corporation Limited for Social Responsibility Work* were revised to further refine the top-down design for social responsibility work. The Company planned to release the Report in both print and electronic versions at the event of centralized release of social responsibility reports organized by Aluminum Corporation of China (CHINALCO), achieving a leading performance in the aspect of process.

#### Materiality (★★★★☆)

The Report systematically disclosed key industrial issues such as project quality management, innovation in product, systems and measures for contractor management, work safety, and construction waste management. The information was adequate and detailed, achieving a leading performance in the aspect of materiality.

#### Completeness (★★★★)

The main contents of the Report systematically disclosed 78.91 percent of core indicators relating to the industry from the perspective of, among others, "economic responsibility," "responsibility for customers," "environmental responsibility," "responsibility for employees," "responsibility for partners" and "responsibility for the community," achieving a good performance in the aspect of completeness.

#### Balance (★★★★)

The Report disclosed the negative information including "number of people suffering minor/serious injuries," "employee turnover," "lost days due to work injury" and "environmental emergencies," achieving a good performance in the aspect of balance.

#### Comparability (★★★★★)

The Report disclosed 78 key indicators including "total assets," "total tax payment," "number of employees," "total charitable donations," "total investments in environmental protection" and "energy consumption per RMB10,000 output value" for three years in a row; and, conducted horizontal comparison on "ranked 81st on the list of 2022 Top 100 Beijing-Based Listed Companies," and other rankings and lists, achieving an excellent performance in the aspect of comparability.

#### Readability (★★★★★)

The Report adopted an issue-based framework and systematically disclosed the actions and achievements of social responsibility performance to the government, customers, environment, employees, partners, the community and other stakeholders in six chapters, responding to the expectations and demands of stakeholders in detail. The cover and chapter pages used a number of real-life images of key projects to highlight the characteristics of the industry and enhance the recognition and influence of the Report. The contents of "Social Responsibility Performance in Figures" exhibited the annual performance highlights. Stakeholder testimonies were included to enhance the effectiveness of social responsibility performance. In all, it achieved a excellent performance in the aspect of readability.

#### Innovation (★★★★☆)

The Report opened with the "Social Responsibility in Focus: Developing Core Technologies from 'Zero to One,'" highlighting the key scientific and technological innovation achievements of the Company and demonstrating the sense of responsibility of a central state-owned enterprise. The Report positively responded to the United Nations Sustainable Development Goals (SDGs), demonstrated responsible actions under specific SDGs, and highlighted the value pursuits of the Company. The Report engaged in the third-party report rating for the first time, which enhanced regulated information disclosure and promoted the improvement of reporting management. In all, it achieved a leading performance in the aspect of innovation.

#### Overall Rating (★★★★☆)

According to the assessment of the rating panel, the 2022 *Environmental, Social and Governance Report of China Aluminum International Engineering Corporation Limited* is awarded a four-and-a-half-star rating. It is a leading ESG report.

#### IV: Improvement Suggestions

1. The disclosure of core indicators relating to the industry shall be enhanced, so as to further improve the completeness of the Report.
2. The contents and design presentation shall be refined, so as to further improve the innovation of the Report.

Huang Qunhui, Vice Chairman of the Chinese Expert Committee on CSR Report Rating

Zhang En, Leader of the Rating Panel

Wei Xiuli, Expert of the Rating Panel

March 6, 2023



Scan the QR code to learn more about corporate rating reports



## 意见反馈

### Suggestions and Feedback

亲爱的读者：

您好！

非常感谢您阅读本报告，为进一步了解您对中铝国际 ESG 管理与信息披露工作的期望和需求，我们诚挚地邀请您参与调查，您的观点和见解对我们至关重要。我们由衷感谢您的宝贵意见和建议！

Dear readers,

Thank you very much for reading this report. In order to better meet your expectations and needs for the ESG management and information disclosure of CHALIECO, we sincerely invite you to participate in the survey, as your views and insights are of great importance to us. We sincerely thank you for your valuable opinions and suggestions!

1. 您对本报告的总体评价如何：

很好  好  一般  差  很差

1. What is your overall assessment of this report?

Very good  Good  Fair  Poor  Very poor

2. 您认为本报告是否能反映公司对经济、社会和环境的重大影响：

是  否

2. Do you think this report reflects the significant economic, social and environmental impact of the Company?

Yes  No

3. 您认为本报告所披露信息、数据、指标的清晰、准确、完整度如何：

较高  高  一般  低  很低

3. What do you think of the information, data and indicators disclosed in this report in terms of clarity, accuracy and completeness?

Very good  Good  Fair  Poor  Very poor

4. 您认为本报告的结构安排如何：

较合理  合理  一般  差  很差

4. What do you think of the structure of this report?

Very reasonable  Reasonable  Fair  Poor  Very poor

5. 您认为本报告版式安排、表现形式设计是否易读：

很好  好  一般  差  很差

5. Do you think the layout and presentation design of this report is easy to read?

Very good  Good  Fair  Poor  Very poor

6. 您认为本报告哪些方面最让您满意？

6. What do you think are the most satisfying aspects in this report?

7. 您对中铝国际 ESG 工作有哪些意见和建议？

7. What are your comments and suggestions on the ESG work of CHALIECO?

8. 您认为本报告还需要披露哪些您希望进一步了解的信息？

8. What other information do you think needs to be disclosed in this report?

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