



中鋁國際工程股份有限公司

China Aluminum International Engineering Corporation Limited

科技 + 國際



2022 環境、社會及管治報告  
Environmental, Social and Governance Report



**勵精圖治 創新求強**



**中鋁國際工程股份有限公司**  
China Aluminum International Engineering Corporation Limited

# 目錄

<b>董事長致辭</b>	<b>03</b>
Message from the Chairman	
<b>董事會ESG管治聲明</b>	<b>07</b>
ESG Governance Statement from the Board	
<b>關於我們</b>	<b>09</b>
About Us	
<b>可持續發展管理</b>	<b>15</b>
Sustainable Development Management	
<b>中鋁國際責任數字</b>	<b>21</b>
Social Responsibility Performance in Figures	

## 責任專題

### 聚焦“從0到1”，培育核心技術 23

Responsibility Focus: Developing Core Technologies from “Zero to One”

## 02

### 客戶責任

#### Customer Responsibility

##### 科技賦能, 讓品質精益求精

Improving Quality with Science and Technology Empowerment

技術創新	47
Innovation in Science and Technology	
品質工程	56
High-Quality Projects	
優質服務	60
High-Quality Services	

## 01

### 經濟責任

#### Economic Responsibility

##### 固本築基, 讓發展致遠

Building Foundation for Sustainable Development

公司治理	33
Corporate Governance	
改革收官	35
Completion of the Reform	
合規管理	37
Compliance Management	
風險防範	39
Risk Prevention and Control	
黨的建設	40
Party Building	
反腐倡廉	43
Anti-Corruption and Integrity Upholding	

## 03

### 環境責任

#### Environmental Responsibility

##### 綠色低碳, 讓家園永續

Building a Better Community with Green and Low-Carbon Initiatives

響應雙碳	63
Response to Carbon Peaking and Carbon Neutrality Goals	
環境管理	64
Environmental Management	
綠色運營	65
Green Operations	
低碳文化	72
Low-Carbon Culture	

# 04

## 員工責任

### Responsibility for Employees

#### 助力成長, 讓人才湧流

Facilitating Career Development and  
Unleashing Creativity of Talented People

權益保障 Rights and Interests Protection	77
員工發展 Employee Development	80
健康與安全 Health and Safety	83
員工關懷 Employee Care	87

# 06

## 公共責任

### Responsibility for the Community

#### 大愛無疆, 讓溫暖傳遞

Contributing to Society with Great Love

鄉村振興 Rural Revitalization	97
志願服務 Volunteer Services	99
海外履責 Overseas Responsibility Fulfilment	100

# 05

## 夥伴責任

### Responsibility for Partners

#### 同行共進, 讓力量匯聚

Gathering Strength to Achieve Win-Win Results

責任供應鏈 Responsible Supply Chain	91
戰略合作 Strategic Cooperation	93
行業共建 Joint Efforts for Industry Development	94

## 未來展望

### Future Prospect

## 附錄

### Appendix

關鍵績效 Key Performance Indicators	104
指標索引 Index Guide	108
釋義 Terms and Abbreviations	110
報告評級 Rating Report	111
意見反饋 Suggestions and Feedback	113

# 報告導讀

## Report Introduction

本報告旨在回應利益相關方期望，展示環境、社會、企業管治及可持續發展方面的理念、管理、行動和成效。

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.

### 時間範圍

#### Reporting Period

2022年1月1日至2022年12月31日，部分內容適當追溯歷史數據。

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

### 報告範圍

#### Reporting Scope

無特殊說明，本報告涵蓋中鋁國際工程股份有限公司總部、分支機構及其附屬子公司。

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

### 報告週期

#### Reporting Cycle

本報告為年度報告。

This report is an annual report.

### 編制依據

#### Basis of Preparation

全球報告倡議組織《可持續發展報告指南（GRI Standards）》

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

中國社會科學院《中國企業社會責任報告指南（CASS-CSR4.0）》

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

中國社會科學院《中國企業社會責任報告指南（CASS-ESG5.0）》

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

上海證券交易所《上海證券交易所上市公司自律監管指引第1號—規範運作》

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

香港聯合交易所有限公司證券上市規則之《環境、社會及管治（ESG）報告指引》

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

聯合國 2030 可持續發展目標（SDGs）

United Nations 2030 Sustainable Development Goals (SDGs)

## 數據來源

### Data Sources

除特殊說明，本報告所引用的信息與數據來自公司的正式文件、統計報告與財務報告，以及經由公司統計、匯總與審核的環境、社會及管治信息。

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.

## 報告獲取

### Report Access

可以在中鋁國際官方網站、香港聯交所網站以及上交所網站流覽和下載本報告的中文簡體／英文、中文繁體／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.

## 稱謂說明

### Terms and Description

為便於表達和方便閱讀，“中鋁國際”“公司”“我們”表示中鋁國際工程股份有限公司總部、分支機構及附屬子公司。如無特殊說明，本報告中的“元”“萬元”“億元”分別代表“人民幣元”“人民幣萬元”“人民幣億元”。

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.”

## 董事長致辭

## Message from the Chairman

2022 年，面對複雜的全球經濟形勢，中鋁國際堅持以習近平新時代中國特色社會主義思想為指導，深入學習宣傳貫徹落實黨的二十大精神，深入貫徹中鋁集團“11336”高質量發展戰略，堅定“科技+國際”發展戰略，聚焦打造內涵式高質量發展新模式，為各方創造價值，加快成為世界一流的、提供有色技術裝備服務綜合方案的解決商。

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.

### 積極奮發作為，揚帆高質量發展

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

中鋁國際堅定不移落實高質量發展理念，公司競爭力、創新力、控制力、影響力和抗風險能力得到全面增強，“一主一特一拓”佈局結構更趨合理，差異化競爭優勢正在逐步形成。2022 年，中鋁國際上榜《財富》中國 500 強，蟬聯 ENR 全球承包商 **250** 強，獲得國家優質工程（金）獎 **3** 項、魯班獎 **1** 項、鋼結構金獎 **1** 項，省部級各類成果獎 **177** 項等，專業與能力獲得行業認可。

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.



## 堅持科技創新，積蓄發展力量

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

中鋁國際胸懷“國之大者”，加大研發投入，強化科技創新引領。2022年，公司召開中鋁國際科技創新大會，取得了一批具有行業影響力的重大科技成果，“鋁冶煉數字化交付與智能運維一體化集成平臺的研發與應用”等**15**項成果均達到國際先進以上水平。公司連續5屆獲得中國專利獎殊榮，培養出一批科技創新領軍人才，全年新增**2**名有色行業工程勘察設計大師。公司強化數智賦能，推動產業升級，實現數智服務創效超**2**億元。

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.

## 踐行“雙碳”要求，助力綠色發展

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

中鋁國際堅定不移走綠色發展、循環發展、低碳發展道路，響應國家節能政策，推動綠色低碳技術創新，形成原創技術策源地，提高綠色能源使用占比，做好國內鋁行業節能綠色環保技術應用的“引領者”；嚴控環境風險，主動把綠色建造、智慧建造融入工程設計全過程，堅守礦產資源開發與生態恢復修復並重，進一步推進綠色礦山、綠色工廠建設，推動有色工業綠色高質量發展。2022年，中鋁國際環保投入**3,423.10**萬元。

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.

## 保障員工權益，共建美好家園

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

中鋁國際始終致力於為員工提供平等發展的機會、搭建施展才能的廣闊平臺，切實保障員工基本權利，關愛員工身心健康，助力員工成長。2022 年，中鋁國際舉辦了第五屆“中鋁國際杯”創新創意大賽、第二屆工程技術職業技能大賽，通過以賽促練，提升員工職業技能。同時，我們積極履行社會責任，助力地方疫情防控，鼓勵員工參與志願服務，現有註冊青年志願者 **1,000** 餘人，全年累計志願服務 **3,605** 小時。持續參與鄉村振興，派出 **6** 名幹部駐村工作，共計投入工作經費 **254.14** 萬元。

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.

## 堅持共創共享，共建“一帶一路”

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

中鋁國際堅持共商共建共享原則，積極發展與“一帶一路”沿線國家、企業的經濟合作夥伴關係，內部協同合作，積極拓展海外業務，初步形成“1+N+1”海外營銷體系；依法合規納稅，帶動當地就業，服務當地民生和環境可持續發展，力爭創出高質量、成體系、有溫度的中鋁國際海外業務品牌。

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.

## 征程萬裏風正勁，重任千鈞再出發

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

2023年是貫徹黨的二十大精神的開局之年，也是實施“十四五”規劃承上啟下的關鍵一年。中鋁國際將緊密地團結在以習近平同志為核心的黨中央周圍，全面貫徹習近平新時代中國特色社會主義思想，深刻領悟“兩個確立”的決定性意義，增強“四個意識”、堅定“四個自信”、做到“兩個維護”，把學習貫徹黨的二十大精神與推進企業轉型升級、實現高質量發展結合起來，知行合一，學以致用，以更加昂揚的鬥志、更加紮實的作風投入到工作中，攜手各方，為推進中國式現代化貢獻力量！

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!





# 董事會 ESG 管治聲明

## ESG Governance Statement from the Board

公司董事會承諾，本公司嚴格遵守《香港聯合交易所有限公司證券上市規則》之《環境、社會及管治 (ESG) 報告指引》的披露要求，負責制定 ESG 方針、策略及目標，審核 ESG 風險評估結果，並對可能影響公司業務運作及利益相關方重點關注的 ESG 相關事宜進行監察。在董事會的領導與監督下，各職能部門以及各成員企業各司其職，協同配合，並定期召開會議，確保適用的 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，公司對議題庫進行完善，並對此進行實質性議題評估，明確年度重點工作。按照《中鋁國際工程股份有限公司社會責任工作管理辦法》《中鋁國際工程股份有限公司社會責任管理模塊及負面清單》，

各部門、各單位嚴格履行責任，中鋁國際對 2022 年各模塊社會責任指標完成情況進行自我評估，形成報告並上報中鋁集團，並對在環境、安全、穩定等方面造成重大負面影響的單位，實行一票否決。

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.

未來，董事會將繼續健全本公司的 ESG 治理，積極回應利益相關方的關切，制定相應的行動計劃，並定期討論相關目標的進度，推進 ESG 管理提升。

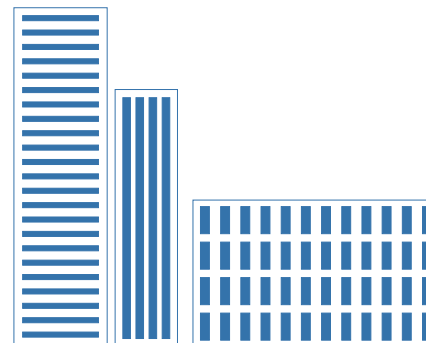
Looking ahead, the board of directors of CHALIECO will continue to improve its ESG governance, actively respond to the concerns of stakeholders, formulate corresponding actions and plans, and deliberate the progress towards relevant goals, striving to enhance ESG management.

# 關於我們

## About Us

### 公司簡介

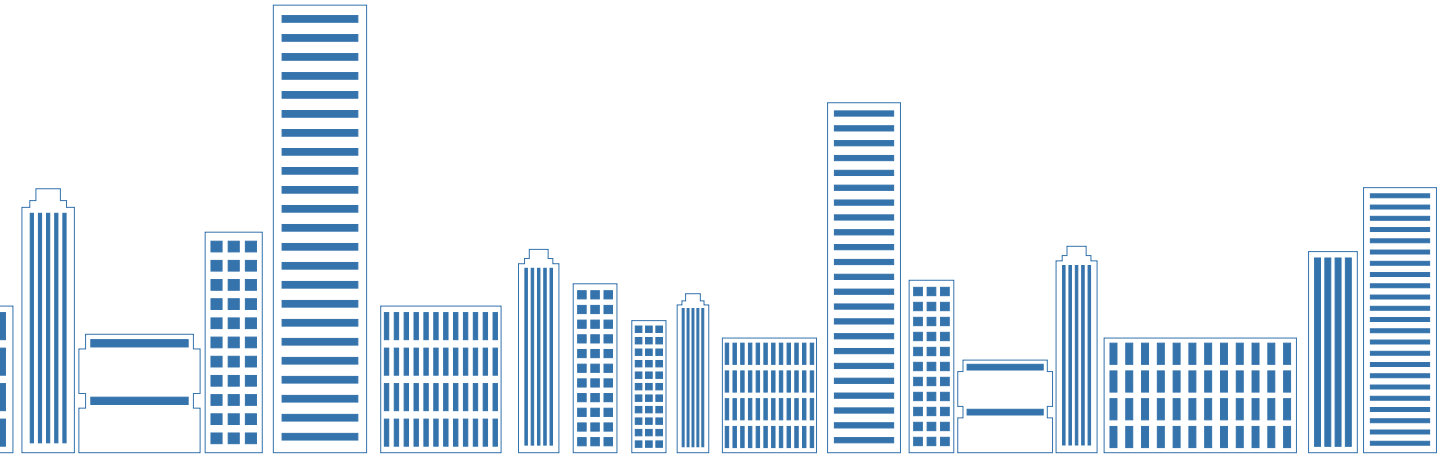
#### Corporate Profile



中鋁國際工程股份有限公司（簡稱“中鋁國際”）成立於 2003 年 12 月 16 日，隸屬於中國鋁業集團有限公司（以下簡稱“中鋁集團”）的工程技術戰略單元，是中鋁集團控股子公司，是中國有色金屬行業領先的技術、工程服務與設備供應商。中鋁國際於 2012 年 7 月 6 日在香港聯交所主板（H 股代碼：02068.HK）上市，於 2018 年 8 月 31 日在上海證券交易所（A 股代碼：601068.SH）上市，成為“A+H”股有色工程技術第一股。

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.

中鋁國際現有員工 **12,000** 餘人，是一家技術研發、測繪勘察、工程設計、工程建設、裝備製造、工程鋁應用和各類相關投資等業務為一體的高新技術企業。中鋁國際成立近二十年來，累計獲得省部級及以上科學技術獎近 **1,000** 項，其中，國家科學進步一等獎 **2** 項、二等獎 **20** 餘項，主編和參加編寫的國家及行業標準和規範 **140** 餘項，擁有有效授權國內外專利 **3,000** 餘件，創造了百餘項“中國第一”和“世界第一”。2022 年度，以第 **97** 位和第 **119** 位蟬聯美國《工程新聞記錄》（ENR）“全球工程設計企業 **150** 強”和“全球承包商 **250** 強”榜單。



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.

近年來，中鋁國際以在行業絕對領先的技術優勢、資質優勢、人才優勢、全產業鏈優勢，積極參與地方基礎設施建設、棚戶區改造、生態建設、環境工程、道路橋樑、城市公用事業等領域的投資、建設與開發，為構建資源節約型和環境友好型社會做出了積極貢獻。

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.

## 企業文化

### Corporate Culture



建設世界一流的提供有色技術裝備服務綜合方案的解決商。

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

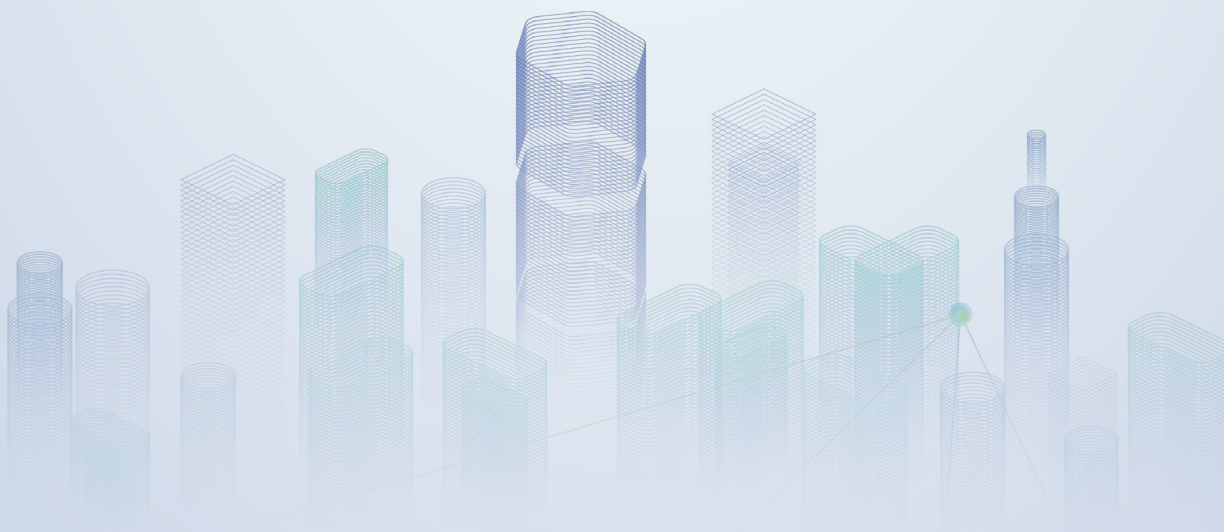


有色工業技術的引領者，有色工程建設的主力軍，基礎設施及民用工程建設的生力軍。

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.



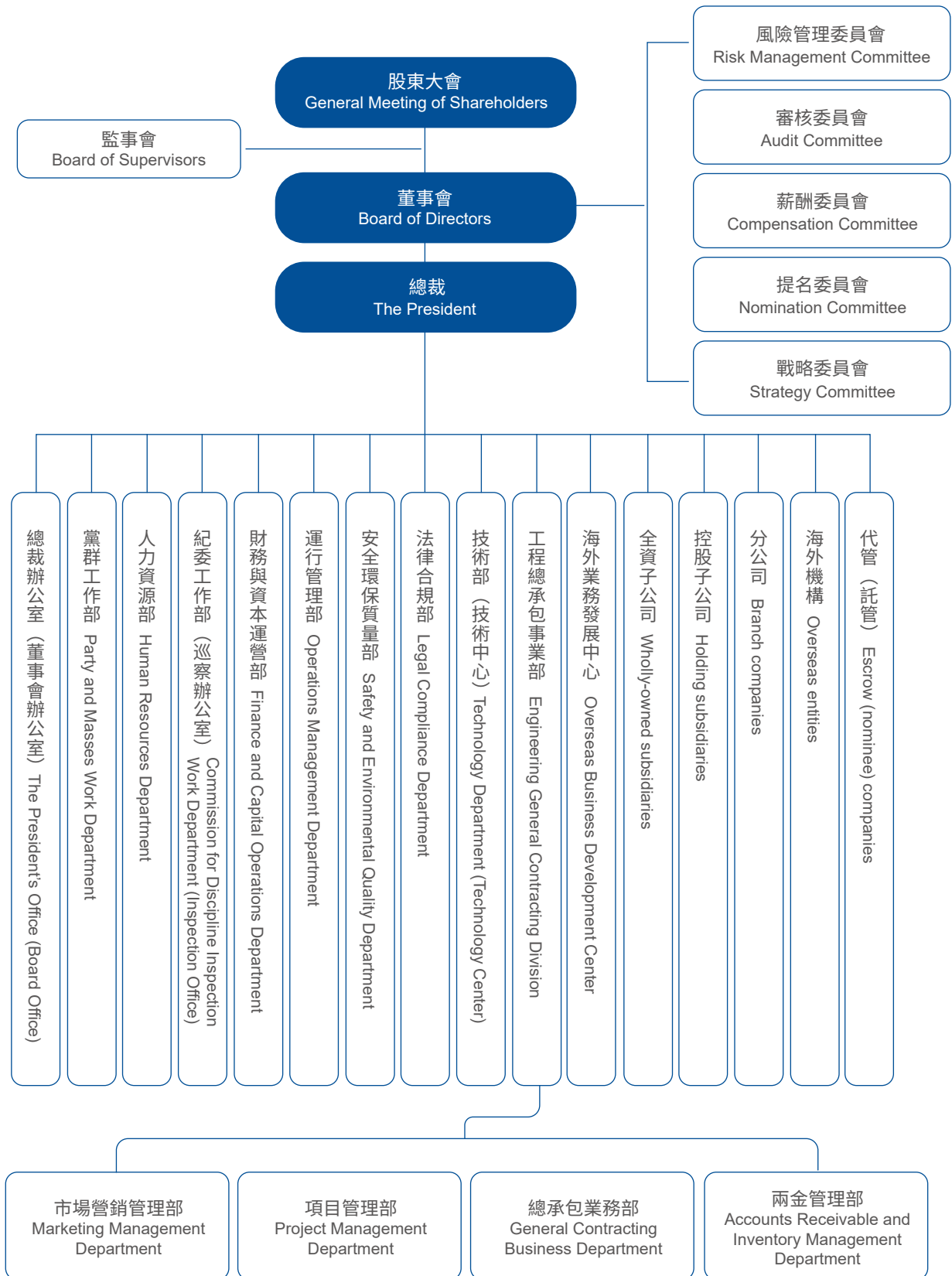
- 科技 + 國際
- S&T + Internationalization





# 組織架構

## Organizational Structure



## 主要企業

### Major Enterprises

#### 全資子公司 Wholly-owned subsidiaries

瀋陽鋁鎂設計研究院有限公司  
Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited (SAMI)

貴陽鋁鎂設計研究院有限公司  
Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited (GAMI)

長沙有色冶金設計研究院有限公司  
CINF Engineering Corporation Limited

中國有色金屬長沙勘察設計研究院有限公司  
China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd.

中國有色金屬工業昆明勘察設計研究院有限公司  
Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd.

中國有色金屬工業第六冶金建設有限公司  
China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company

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

中鋁國際(天津)建設有限公司  
CHALIECO (Tianjin) Construction Co., Ltd.

中鋁西南建設投資有限公司  
CHINALCO Southwest Construction Investment Co., Ltd.

中鋁國際工程設備有限公司  
China Aluminum International Engineering Equipment Co., Ltd.

中鋁國際技術發展有限公司  
China Aluminum International Technology Development Co., Ltd.

中鋁國際鋁應用工程有限公司  
CHALIECO Aluminum Application Co., Ltd.

中鋁國際雲南鋁應用工程有限公司  
CHALIECO Yunnan Aluminum Application Engineering Co., Ltd.

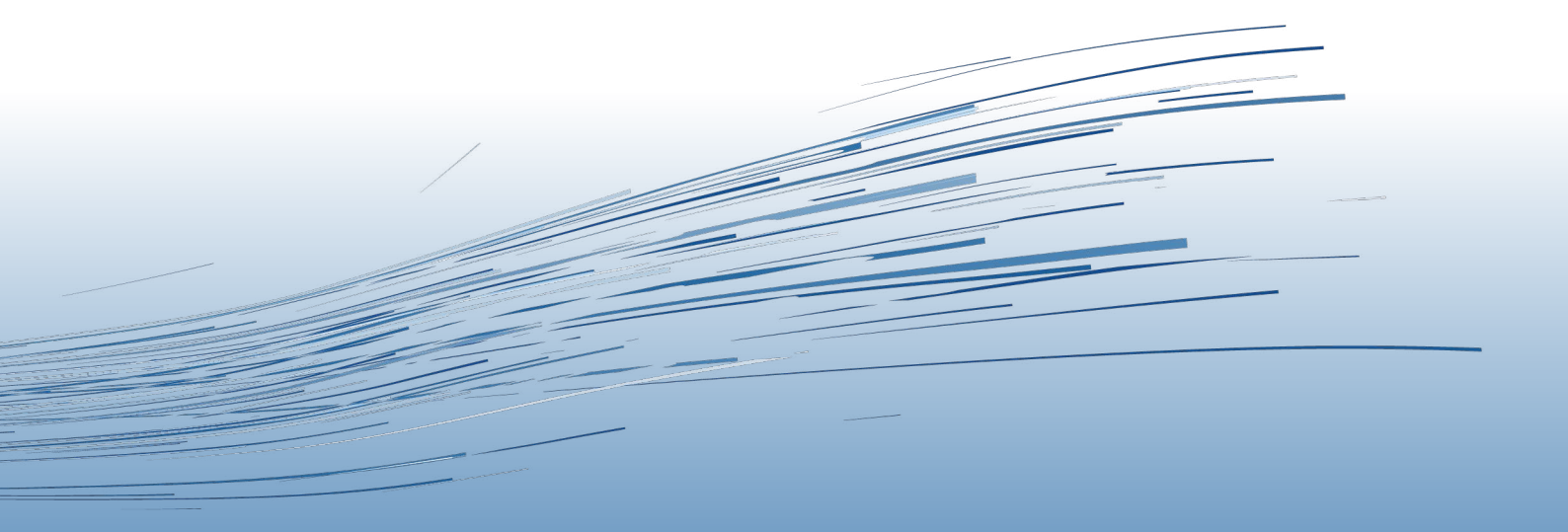
#### 控股子公司 Holding subsidiaries

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

昆明有色冶金設計研究院股份公司  
Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd.

九冶建設有限公司  
Jiuye Construction Co., Ltd.

中鋁山東工程技術有限公司  
CHALIECO Shandong Engineering Technology Co., Ltd.



# 可持續發展管理

## Sustainable Development Management

中鋁國際秉承“科技+國際”的發展戰略，將可持續發展理念全面融入企業日常運營管理中，持續完善社會責任治理架構和運行機制，積極回應利益相關方要求和期待，推動實現企業和社會的多方共贏。

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.

## 可持續發展行動

### Sustainable Development Actions

#### 完善制度 System improvement

完成《中鋁國際工程股份有限公司社會責任管理模塊及負面清單》《中鋁國際工程股份有限公司社會責任工作實施細則》修訂

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*

#### 參加培訓 Training participation

參加集團社會責任工作培訓會，強化社會責任意識

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

#### 聯合發佈 Joint release

參與集團“2021 社會責任報告發佈會”，與集團及兄弟單位聯合發佈社會責任報告

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

#### 設置專欄 Column setting

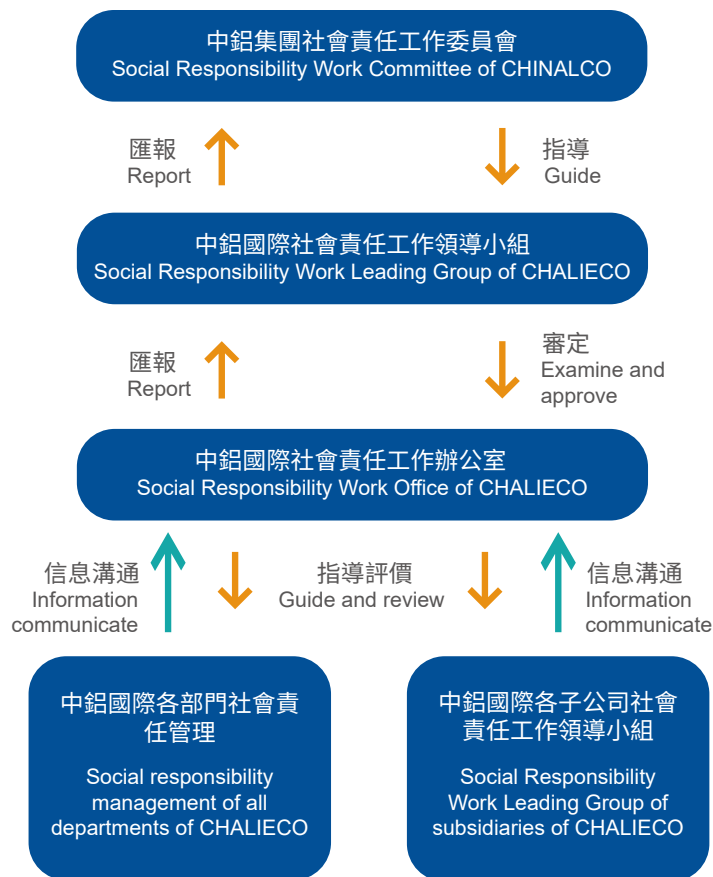
官網設置社會責任專欄，提升企業社會責任影響力

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

## 組織體系 Organizational System

公司將社會責任管理有效融入業務管理系統，成立由黨委書記、董事長擔任組長，總裁擔任常務副組長，領導班子其他成員以及有關人員擔任副組長的社會責任工作領導小組，負責向上匯報社會責任工作進展，向下傳達中鋁集團關於社會責任工作的指導及管理意見，統籌規劃公司社會責任工作的實施。領導小組下設辦公室，負責社會責任的日常工作。

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.



中鋁國際社會責任組織體系  
Social Responsibility Organizational System of CHALIECO

# 利益相關方溝通

## Communication with Stakeholders

中鋁國際高度重視與利益相關方的溝通交流，建立起有效便捷的溝通機制和溝通渠道，積極聽取不同利益相關方的聲音，並就相關問題進行回應，不斷提高公司透明度，提升管理運營能力。

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.

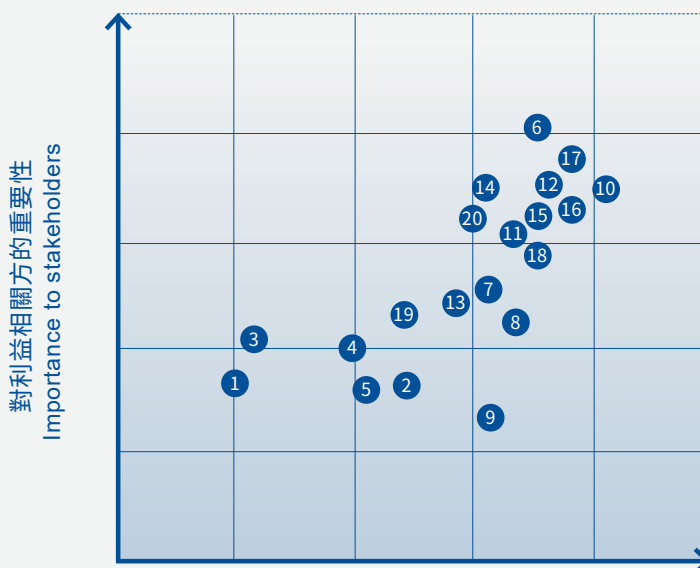


# 重大議題識別

## Material Issue Identification

為進一步提高針對性和報告披露信息的回應性，中鋁國際通過分析比較不同可持續發展議題對利益相關方的影響和對本公司自身發展的重要性，識別篩選出需要在報告中重點披露的議題。

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.



對中鋁國際可持續發展的重要性  
Importance to the sustainable development of CHALIECO

	員工 Employees		供應商與客戶 Suppliers and customers		環境 Environment		社區及公眾 Community and the public
<ul style="list-style-type: none"> <li>● 權益維護 Protection of rights and interests</li> <li>● 職業健康 Occupational health</li> <li>● 薪酬福利 Compensation and benefits</li> <li>● 職業發展 Career development</li> </ul>	<ul style="list-style-type: none"> <li>● 依法履約 Contract fulfillment according to the law</li> <li>● 誠信經營 Integrity operations</li> <li>● 優質產品與服務 High-quality products and services</li> </ul>	<ul style="list-style-type: none"> <li>● 合規排放 Compliance with pollutants discharge standards</li> <li>● 節能減排 Energy-saving and emission reduction</li> <li>● 保護生態 Ecological protection</li> </ul>	<ul style="list-style-type: none"> <li>● 改善社區環境 Improve community environment</li> <li>● 參與公益事業 Participate in public welfare activities</li> <li>● 信息公開透明 Disclose information in an open and transparent manner</li> </ul>				
<ul style="list-style-type: none"> <li>● 職工代表大會 Employees' congress</li> <li>● 集體協商 Collective negotiation</li> <li>● 民主溝通平臺 Democratic communication platform</li> </ul>	<ul style="list-style-type: none"> <li>● 商務溝通 Business communication</li> <li>● 客戶反饋 Customer feedback</li> <li>● 交流研討 Exchanges and discussion</li> </ul>	<ul style="list-style-type: none"> <li>● 工作匯報 Work reporting</li> <li>● 報表報送 Statements reporting</li> <li>● 調研檢查 Investigation and inspection</li> </ul>	<ul style="list-style-type: none"> <li>● 公司網站 Official website</li> <li>● 公司公告 Corporate bulletins</li> <li>● 採訪交流 Interviews and exchanges</li> </ul>				

1 社區發展貢獻 /Contribution to community development	11 項目質量管理 /Project quality management
2 水資源使用管理 /Water resource use management	12 綠色施工 /Green construction
3 知識產權保護 /Protection of intellectual property rights	13 自主創新 /Independent innovation
4 供應鏈管理 /Supply chain management	14 風險管理 /Risk management
5 促進行業發展 /Promote industrial development	15 反腐倡廉 /Anti-corruption and integrity upholding
6 廢棄物管理 /Waste management	16 安全生產 /Work safety
7 能源使用管理 /Energy use management	17 合規合法經營 /Law-based and compliance operation
8 員工權益保障 /Protection of employees' rights and interests	18 ESG 管治 /ESG Governance
9 員工培訓發展 /Employee training and development	19 鄉村振興 /Rural revitalization
10 員工健康安全 /Health and safety of employees	20 生態保護 /Ecological protection

## 企業榮譽 Awards and Honors



中鋁國際蟬聯 ENR 全球承包商 **250 強**

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

中鋁國際上榜 2022 年  
《財富》中國 **500 強**

CHALIECO ranked on the list of 2022 Fortune China 500

中鋁國際入選“2022 北京上市公司  
100 強榜單”，排名第 **81 位**

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



中鋁國際入圍 2022 ENR 工程設計企  
業全球營收 **TOP100**

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

中鋁國際入選“央企 ESG 治理·先  
鋒 50 指數”榜單第 **32 位**

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

中鋁國際榮獲 2022 ESG 金  
牛獎“**鄉村振興先鋒**”

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



貴陽院設計、六冶承建的雲南神火鋁業有限公司 90 萬噸綠色水電鋁材一體化項目獲**國家優質工程金獎**

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

六冶參建的北京環球影城主題公園項目榮獲**魯班獎**

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

九冶參建的新疆維吾爾自治區新華書店物流基地工程獲**中國鋼結構金獎**

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



瀋陽院設計的內蒙古蒙泰達拉特 90 萬噸 / 年鋁板帶項目榮獲**國家優質工程獎**

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

長沙院設計，六冶、十二冶參建的幾內亞 Boffa 鋁土礦礦山項目獲**國家優質工程獎**

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



# 中鋁國際責任數字

## Social Responsibility Performance in Figures



Total tax payment: RMB**823.4474** million

納稅總額

**82,344.74** 萬元



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

項目獲得國家級獎項

**5** 個



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

研發資金投入

**91,206.62** 萬元



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

累計有效專利數

**2,832** 件



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

員工培訓

**28,686** 人次



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

人均帶薪休假

**10.49** 天





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

環保投入

**3,423.10** 萬元



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

工業固體廢棄物重複利用率

**100%**



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

主要污染物排放達標率

**100%**



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

鄉村振興項目投入

**254.14** 萬元



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

慈善捐贈總額

**8.7** 萬元



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

累計志願服務

**3,605** 小時



## 責任專題：聚焦“從 0 到 1”，培育核心技術 Responsibility Focus: Developing Core Technologies from “Zero to One”

當今世界，科技創新已經成為提高綜合國力的關鍵支撐，成為社會生產方式和生活方式變革進步的強大引領，誰牽住了科技創新這個牛鼻子，誰走好了科技創新這步先手棋，誰就能佔領先機、贏得優勢。

——習近平

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



中鋁國際依託自身品牌與技術優勢，聚焦“科技+國際”戰略，形成科技創新新優勢，在建設國內一流、全球有競爭力的有色行業工程技術公司、突破前沿核心技術的路上，打破了受制於人的局面，取得了一系列新成果，引領中國有色金屬工業核心技術發展。

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.



## 瀋陽院

Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited

瀋陽院作為中國鋁工業技術發展的開拓者和主力軍，建有國家級鋁工業節能環保技術工程研究中心、國家企業技術中心、博士後工作站和 6 個省部級工程技術研究中心，獲得國家、省部級科技進步獎、優秀工程設計諮詢獎 500 餘項，擁有有效專利 550 餘件，國際專利 120 餘件。

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.

### 綠色低碳鋁電解深度節能技術

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

具有節能效果顯著、覆蓋範圍廣、技術適應性強、澆鑄成功率高、便於實施等特點，有利於提高電解生產的安全性和穩定性。截至 2022 年，該技術已在中鋁集團、國家電投集團、土耳其 ETI 鋁業等項目、多種槽型上得到了廣泛應用，取得良好的經濟效益與環境效益。

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.



### 綠色低碳鋁電解深度節能技術組裝設備

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



## 貴陽院

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

貴陽院作為我國最具實力的輕金屬冶煉設計科研單位之一，擁有國家鋁鎂電解裝備工程技術研發中心、博士後工作站，先後研發陽極導杆自動焊接技術、炭素陽極智能堆垛機組及倉儲管理系統、電解質等眾多鋁冶煉智能製造技術，提升我國鋁冶煉技術與裝備的綜合實力。

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.

#### 一站式智慧工廠整體架構設計

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

以 5G 工業專網為依託，融合 BIM、數字孿生、專家知識庫、大數據挖掘分析等技術，設立 1 個可視化“工業智慧大腦”，滿足電解鋁生產管理精細化、過程數字化和決策智能化的要求，打造“5G+BIM+ 智慧工廠+雙碳”模板，助力鋁工業綠色高質量發展。

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 + 智能化工廠示範基地

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



## 長沙院

CINF Engineering Corporation Limited

長沙院作為我國最早成立的大型綜合性設計研究單位之一，擁有有效專利 400 餘件，形成一批具有自主知識產權的核心技術，在礦山、冶煉和環境保護方面處於國際領先水平。

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.

### 礦山固廢資源化生態化梯級集成利用技術

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

主要包括原礦預先智能拋廢技術、采空區高濃度低成本尾礦充填技術等關鍵技術，能夠有效解決有價金屬非金屬資源浪費嚴重、尾礦庫生態修復難度大等重大技術難題，先後在我國多座大型礦山成功應用，達到國際先進水平，獲得中國有色金屬工業科學技術一等獎。

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.

昆明院作為全國勘察設計行業創新型優秀企業，多項技術具有國際領先、國內一流水平，獲得國家級、省部級優秀工程諮詢、工程設計、優質工程、科技進步、標準設計和計算機軟件成果獎 340 餘項，獲得國家專利 70 餘項。

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.

### 細粘粒高尾礦壩成災機理及其潰壩災害防控技術

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

探究了細粘粒高尾礦壩工程力學特性及災變機理，建立了新的穩定性及潰後影響範圍評價體系，解決了細粒徑尾礦物理力學指標較差，透水性較差，固結時間較長等問題，達到國內領先水平，先後應用於大紅山銅、小團山尾礦庫 (147m)、小麥地尾礦庫等工程。

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.



## 長勘院

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

長勘院大力實施主業立院、科技興院、開拓富院、人才強院戰略，勇當中國勘察設計行業的科技開拓者，榮獲國家及省部級科技進步獎和優秀工程勘察設計獎 275 項，申請專利 77 件，主編、參編國家、行業及地方規範 30 餘本。

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”一體化礦山重大災害監測與預警系統 “Space-air-ground” integrated major mine disaster monitoring and early warning system

包括“天空地”一體化礦山安全智能化監測預警、礦山無人自動安全巡檢等多項核心技術，可實現全天候、全天時、全場景、全地形智能化監測與預警信息發佈，廣泛應用於礦山、建設工程、地質災害的安全在線監測預警領域，對推動我國礦山重大危險源、工程與地質災害智能化監測預警技術進步具有重要作用。

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 工程災害智能監測雷達系統

Online SAR Engineering Disaster Intelligent Monitoring Radar System





## 昆勘院

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

昆勘院作為國家高新技術產業和雲南省創新型企業，圍繞岩土工程一體化、礦業工程一體化、地質找礦、建築設計、水資源與土壤污染和大數據應用六個方向持續攻關，累計完成科研項目 200 餘項，共獲得國家和省部級科技成果獎 25 項。

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.

### 高寒山區高陡邊坡植被恢復關鍵技術

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

包括適宜於“三高”的低成本厚層生態基材，低成本、低維護自灌溉系統，試驗篩選出最合適的植物種類及群落混播配方，填補在高寒山區裸露邊坡或斜坡植被恢復技術短板，已在雲南迪慶普朗銅礦、攀鋼西渣場等多個項目推廣應用。

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.



### 高海拔高寒山區植被恢復治理技術應用

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.

中色科技作為國內唯一一家有色金屬加工諮詢設計研究型企業，圍繞制約我國有色金屬加工行業發展的共性技術和關鍵技術，積極承擔重點研發任務，多項技術成果填補國內空白，為我國有色金屬加工行業的技術進步和產業升級做出突出貢獻。

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 六輥鋁帶冷軋機組

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

成功突破 18 項技術難題，4 項關鍵核心技術，填補國內在有色金屬加工寬幅鋁帶冷軋機領域的空白，達到國際先進水平，推進有色金屬加工行業重大技術裝備提升，該研發成果已在國內多家大型鋁加工企業應用，成功代替進口。

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 六輥鋁帶冷軋機組

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



## 山東工程設計院

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

山東工程設計院作為中國最早的有色冶金工程設計單位之一，打造了氧化鋁、催化劑、餘熱利用等優勢領域，完成的多個項目榮獲有色金屬行業部級優秀工程諮詢成果獎、有色金屬行業部級優秀工程設計獎、中國有色金屬工業優質工程。

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.

### 精細化氧化鋁兩段式焙燒系統

Two-stage roasting system for refined alumina

融合熱能梯度分級利用、多級懸浮預熱、綜合熱能回收等多項創新煅燒與節能環保技術，節能效果顯著，滿足多種工況的使用；通過建立數學模型進行精準控制，實現智能化無人值守。

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.



### 精細化氧化鋁兩段式焙燒系統

Two-stage roasting system for refined alumina

# 01

## 經濟責任

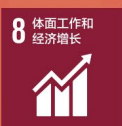
### ECONOMIC RESPONSIBILITY

#### 固本築基, 讓發展致遠

##### Building Foundation for Sustainable Development

中鋁國際深入推進企業治理體系和治理能力現代化建設, 持續加強董事會建設; 推動全面深化改革走深走實、圓滿收官; 不斷完善合規管理, 強化內部控制, 提升風險防控水平; 不斷加強黨的建設, 築牢反腐倡廉防線, 為實現公司內涵式高質量發展奠定堅實基礎。

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 successfully 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

中鋁國際嚴格遵守《中華人民共和國公司法》《上市公司治理準則》等相關法律法規，不斷完善治理體系。作為兩地上市的上市公司，中鋁國際同時嚴格遵守《上海證券交易所股票上市規則》《香港聯合交易所有限公司證券上市規則》等證券監管要求。

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.

## 完善治理架構

### Improving Governance Structure

中鋁國際設立了股東大會、董事會、監事會，持續重視完善治理架構和各項治理制度，致力於憑藉高水平的企業治理能力有效領導中鋁國際高質量發展，保障股東權益，以良好業績回報社會。

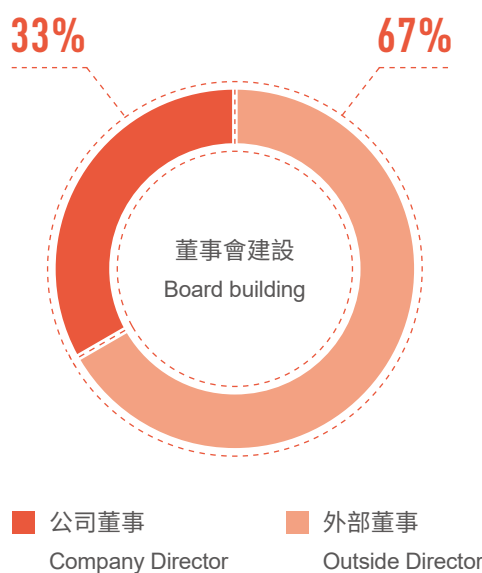
We have established the general meeting of shareholders, board of directors and board of supervisors, and constantly focused on improving governance structure and various governance systems. With higher capacity for corporate governance, we have been committed to effectively promoting high-quality development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

## 強化董事會建設

### Advancing Board Construction

公司制定了《董事會成員多元化政策》，明確董事會成員設定綜合考慮因素，多渠道引入國企人員、專家學者、民企高管擔任公司外部董事，確保董事會成員多元化。截至 2022 年 12 月 31 日，公司董事會由 9 名成員組成，其中執行董事 3 名，非執行董事 3 名，獨立非執行董事 3 名，外部董事占比約為 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.



公司獨立董事嚴格按照《中鋁國際工程股份有限公司獨立董事工作制度》等有關規定，履行獨立董事法定職權，積極參與董事會決策，提升公司專業化運作水平，切實維護股東利益和中小股東合法權益。2022年，中鋁國際共召開12次董事會會議，審議96項議案。報告期內，公司董事會秘書榮獲中國上市公司協會2022年度履職4A評價，董事會辦公室榮獲中國上市公司協會“2022上市公司董辦優秀實踐”獎。

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，中鋁國際共召開

**12**次

董事會會議

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

2022年，中鋁國際共審議

**96**項

審議議案

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

## 投資者關係管理 Investor Relations Management

公司積極做好投資者關係維護，不斷創新拓展投資者溝通渠道，通過召開股東大會、定期發佈公告等形式，及時回應投資者訴求，加深投資者對公司的瞭解和認同，增強信息透明度。2022年，公司嚴格按照相關制度加強信息披露管理，未發生信息披露違規行為。

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 年是國企改革三年行動收官之年，中鋁國際認真落實各項部署要求，持續加強組織引導、強化責任落實、緊密跟蹤督促，確保改革三年行動各項工作推動有力、有序落實、發揮效用。2022 年底，公司國企改革三年行動全面高質量完成。

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.

### 中鋁國際改革收官重點工作：

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

完善中國特色現代化企業治理體系和制度，規範各級次企業公司治理，提升各級次企業董事會治理效能，實現董事會應建盡建，外部董事占多數，建立職責法定、權責透明、協調運轉、有效制衡的公司治理機制。

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.

深入推進“三項制度”改革，大力推進全級次企業任期制和契約化管理，制定了各企業經理層成員績效考核、薪酬管理辦法，持續推進人員壓減和結構優化。

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.





對全級次“兩非”<sup>1</sup>、低效資產、低效參股等進行排查，“兩非”治理成效顯著。

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

高質量推動長沙院、中色科技和昆明院的“科改示範行動”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> “兩非”是指非主業、非優勢業務。

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

# 合规管理

## Compliance Management

中鋁國際恪守誠信經營、公平競爭的商業道德和準則，圍繞公司改革發展總體目標，強化企業合规管理工作有序開展，形成高效的法律合规工作管控體系，構建良好的企業合规管理文化氛圍，進一步推動企業可持續發展。

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.

### 合规管理舉措

#### Compliance management measures

初步建立公司合规管理大格局，完成國資委和集團部署的“合规管理強化年”目標；

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.

設計並搭建合规管理組織體系，圍繞全週期合规風險管理流程建立健全企業合规運行機制，確保流程管控到位；

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.

通過規章制度匯編、“立、改、廢”工作計劃、崗位應知應會清單等實現規章制度清單化管理；

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.

創新開展應知應會規章制度培訓測評考試，培育企業特色合规文化，調動員工積極性與主動性。

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**開展培訓考評，培育合規文化****CHALIECO conducts training examination of rules and regulations, cultivates compliance culture**

8月，中鋁國際組織開展應知應會規章制度培訓測評，此次培訓圍繞股權投資、資金管理、安全環保、法律管理、風險防控等現行有效的規章制度展開，有效提升了經營管理人員合規經營的意識和能力。

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.



**中鋁國際組織經營管理人員參與應知應會規章制度培訓考評**

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

# 風險防範

## Risk Prevention and Control

中鋁國際實行以風險管理為導向的內部控制體系，持續完善全面風險管控機制，印發《中鋁國際工程股份有限公司全面風險管理實施細則》，進一步完善公司全面風險管理體系；建立公司內控評價體系，印發《中鋁國際工程股份有限公司內部控制評價實施細則》，規範完善內控評價工作流程及具體內容；通過主題培訓和學習交流等方式，提升員工的風險意識與防範能力，全面保障公司健康平穩運行。報告期內，公司未發生重大風險事件。

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.

### 風險防控措施

#### Risk prevention and control measures

定期組織開展年度風險評估工作，全面總結分析風險管控成效，梳理重要風險事項；  
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.

每月編制風險管理監控報告和監控表，從風險描述、應對措施、風險管控措施、管控成效、風險變化趨勢、風險管控建議六方面系統梳理重大風險管控情況，實現有效控制；

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.

組織各單位及項目部開展境外項目（企業）風險排查，發現風險隱患，制定防控措施，形成風險防控方案。

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

中鋁國際堅持以習近平新時代中國特色社會主義思想為指導，將堅持和加強黨的全面領導寫入公司章程，落實各級責任，在集團黨組和公司黨委的領導下，深化黨史學習教育成果，黨建與業務工作“雙向融合”提檔升級，切實發揮各級黨組織重要作用。

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.



中鋁國際黨委班子召開專題民主生活會

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

貫徹二十大精神  
Implementing the  
spirit of the 20th  
National Congress  
of the CPC

開展“喜迎二十大，踔厲奮發、勇立新功”主題活動，並組織“喜迎二十大”攝影及書畫作品評比等活動；開展了“八個一”活動，認真學習貫徹黨的二十大精神。

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.

強化政治引領  
Strengthening  
political guidance

修訂黨委前置審議事項清單，組織開展黨委中心組學習品質提升專項行動。

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.

厚植黨建文化  
Enhancing Party  
building culture

組織撰寫《中鋁國際 2022 年形勢任務教育提綱》並測評，宣貫理念；宣貫“科技 + 國際”等經營理念和要求，統一全員認識；組織開展黨史知識競賽、黨員先鋒崗等“黨建 +”活動，營造學習氛圍。

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.



### 組織結對共建

Conducting joint  
Party building

印發《關於開展黨組織結對共建工作的指導意見》，開展黨組織共建和“共學共促”活動，9家企業黨委與業主、上級黨組織結對共建，有效促進了各項工作開展。

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

在國家級主流媒體刊稿 15 篇，中國有色金屬報等省部級媒體刊稿 198 篇、中鋁報 168 篇、今日中鋁刊發 31 篇，樹立了中鋁國際的良好形象。

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

中鋁國際保持高壓態勢，強化對權力運行的監督制約，並持續加強廉潔教育，深入開展廉潔文化學習、扎實推進“反腐倡廉宣傳教育月”等各項活動，築牢廉潔自律防線，營造風清氣正的企業風氣。2022 年，中鋁國際共講授 216 次廉潔教育課，3,539 人次接受廉潔教育，13 家成員企業的 7,336 名幹部員工參與了網絡廉潔競賽答題。

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.



中鋁國際共講授廉潔教育課

**216** 次

CHALIECO organized **216** education lectures themed integrity



接受廉潔教育

**3,539** 人次

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



參與網絡廉潔競賽答題

**7,336** 名

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

完善制度建設  
Developing and  
improving systems

立足規範權力運行，組織梳理生效制度 223 個，把制度建設作為落實黨委主體責任的重要措施；

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.

重視廉潔教育  
Paying attention to  
integrity education

組織開展廉潔文化學習、廉潔黨課專題教育、新任幹部廉潔談話、以案促改警示教育等各類廉潔教育活動，增強拒腐防變能力；

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.



加強廉政監督  
Enhancing clean management supervision

持續推進“大監督”工作體系和機制，每個季度召開“大監督”工作委員會會議，推動日常監督融入公司生產經營；

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.

嚴格廉政考核  
Strictly conducting clean management evaluation

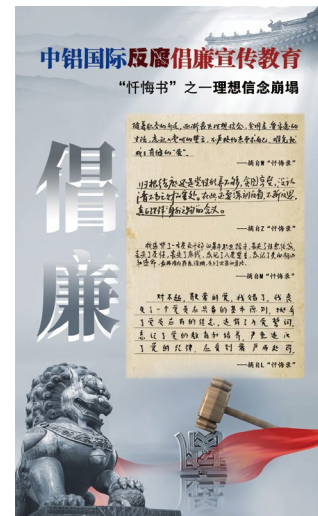
制定黨風廉政建設考核方案，明確責任清單，組織對成員企業、黨支部黨風廉政建設進行考核；主動接受集團巡視組巡視，配合上級審計，全力推進整改工作。

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.



中鋁國際 2022 年以案促改警示教育大會

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



中鋁國際開展系列廉潔教育主題活動

CHALIECO conducted a series of integrity education themed activities



# 02

## 客戶責任

### RESPONSIBILITY FOR CUSTOMERS

#### 科技賦能, 讓品質精益求精

Improving Quality with Science and Technology  
Empowerment

中鋁國際緊密圍繞“科技+國際”的發展戰略, 強化創新驅動高質量內涵式發展, 努力實現高水平科技自立自強; 依靠匠心建造、精益管理, 不斷為客戶奉獻精品工程, 提供支撐社會經濟發展、惠及民生的高品質產品與服務, 讓發展充滿動力, 讓品質添彩生活。

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.





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## 技術創新

# Innovation in Science and Technology

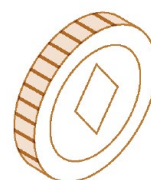
中鋁國際從體制機制創新、人才激勵培養、科技創新成果、數字信息化等方面全面實施創新驅動發展戰略，致力打造原創技術策源地，為建設國內一流、全球有核心競爭力的有色金屬工程技術公司提供強大動力。2022 年，中鋁國際研發投入 91,206.62 萬元。

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.

研發投入

**91,206.62** 萬元

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



## 推進創新管理

### Innovation Management

中鋁國際制定併發布了“十四五”科技發展專項規劃，建立健全《中鋁國際科技重大專項管理辦法》《中鋁國際科技創新獎勵暫行辦法》《中鋁國際技術轉讓與許可管理辦法》等管理制度；構建三級次研發項目管控體系和重點項目巡查機制；推進創新研發平臺建設，為建設創新型企業提供堅實保障。

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** 個國家級工程技術研究中心  
Two national engineering technology research centers
- **7** 個國家企業技術中心  
Seven national enterprise technology centers
- **4** 個國家級企業博士後科研工作站  
Four national enterprise postdoctoral research stations
- **22** 個省級工程技術中心  
22 provincial engineering technology centers
- **2** 個省級博士後創新實踐基地  
Two provincial postdoctoral innovation practice bases
- **1** 個省級工程實驗室  
One provincial engineering laboratory

## 創新平臺取得新突破

### New breakthroughs achieved by innovation platforms

- ❁ 長沙院被工信部評為“國家技術創新示範企業”，為 2022 年全國唯一獲此殊榮的設計研究單位；

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.

- ❁ 瀋陽院、長沙院和昆勘院的 3 個國家企業技術中心獲批建立；

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.

- ❁ 瀋陽院和昆勘院的 2 個國家級博士後科研工作站正式獲批建立；

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.

- ❁ 中色科技籌建的“河南省博士後創新實踐基地”“有色金屬加工工業互聯網平臺”和“洛陽市有色金屬加工先進工藝和高端裝備產業研究院”獲批；

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.

- ❁ 山東工程籌建的“山東省省級企業技術中心”獲批，依託生產企業合作建成了鋁冶煉、重金屬固廢資源化利用和有色金屬加工裝備 3 個科研試驗基地。

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.

## 創新人才培養 Innovative Talent Cultivation

中鋁國際牢固樹立“人才是第一資源”優勢，着力打造中鋁國際高端人才基地，制定《科技人才薪酬激勵實施指導意見》；建立青馬工程人才庫，提高核心科技人才的薪酬待遇；構建以中鋁首席工程師、行業大師、“三級次”科技骨幹人才為主要力量的科技創新人才梯隊。2022年，推選首席科學家1人、首席工程師23人、入選“鑽石計劃”11人、“明星計劃”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.



入選“鑽石計劃”

11 人

11 people were elected for the Diamond Project



入選“明星計劃”

35 人

35 for the Star Project

### 案例 Case

激勵人才，中鋁國際召開科技創新大會  
CHALIECO holds scientific and technological innovation conference to motivate talented people

4月，中鋁國際召開科技創新大會，總結近5年科技工作成績，對13項重大科技成果技術團隊進行表彰，宣佈公司首批98名科技骨幹人才名單，對新發展階段科技創新工作作出部署，提高人才積極性，穩定人才隊伍。

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.



中鋁國際科技創新大會

The scientific and technological innovation conference held by CHALIECO

### 案例 Case

提升數智賦能，公司舉辦“中鋁國際杯”職業技能大賽  
CHALIECO holds CHALIECO Cup occupational skills contest to  
enhance digital and intelligent empowerment

8月，“中鋁國際杯”第二屆工程技術職業技能大賽在貴陽順利舉辦，比賽分為三維數字建模和項目管理業務技能兩大評選模塊。此次大賽的成功舉辦，為中鋁國際深入貫徹落實“科技+國際”發展戰略，加快提升數智化水平蓄力賦能。

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.



“中鋁國際杯”第二屆工程技術職業技能大賽現場

Second “CHALIECO Cup” Engineering Technology Occupational Skills Competition

## 科技創新成果

### Scientific and Technological Innovation Achievements

中鋁國際以國家高新技術企業認定為契機，聚焦主業的“八大領域、五大方向”組織實施科研立項攻關，優先發展一批能解決行業難題的關鍵核心技術，不斷促進技術成果的轉化，全力打造中鋁國際技術品牌。2022年，中鋁國際15項成果達到國際先進以上水平，22項技術成果獲得省部級科技獎，連續5屆榮獲中國專利獎。

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年中鋁國際 CHALIECO in 2022

成果達到國際先進以上水平

**15** 項

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

技術成果獲得省部級科技獎

**22** 項

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

連續榮獲中國專利獎

**5** 屆

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

## 2022 年，公司多項科研項目取得重大成果：

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



### 均流穩燃智能罐式爐關鍵技術

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

突破罐式爐揮發份分配不均關鍵技術難點和智能化控溫的技術瓶頸，滿足具有嚴重非線性、耦合性、時變性的複雜工藝控制要求，首次實現罐式爐智能化控溫工藝，獲國家授權專利 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.



### 鋁冶煉數字化交付與智能運維一體化集成平臺

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

降低建造成本、提升品質、提高產能、降低能耗，打造鋁冶煉行業智能工廠建設新生態，獲得國家授權專利 11 項。

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.



### 陽極炭塊倉儲與轉運無人化關鍵技術

Unmanned technology for anode carbon block storage and transfer

實現陽極炭塊轉運工序的無人化作業、炭塊出入庫和庫存信息的精準管理和過程信息追溯，促進電解鋁企業的智能生產，榮獲 2022 年行業協會部級科學技術一等獎。

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.





礦體高中段大盤區安全高效開  
採新技術

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

提升金屬非金屬礦山安全、高效、低碳開採技術水平，為資源節約型、環境友好型礦山實現綠色低碳開發提供技術支撐和工程示範，達到國際領先水平。

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.



高銻鋅精礦銻高效提取及高純  
化合物製備技術

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

解決銻富集度不高、綜合回收率低、鋅粉耗量大、生產能耗高等重大技術難題，為高銻鋅精礦銻高效提取及高純化合物製備提供技術支撐，達到國際領先水平。

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.



高精度銅合金板帶熱軋裝備及  
組織調控關鍵技術

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

顯著提高合金的高溫穩定性與最終使用性能，打破國外技術壟斷與封鎖，榮獲 2022 年行業協會部級科學技術一等獎。

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

長沙院 198m<sup>2</sup> 鋅精礦流態化焙燒爐技術方案通過專家驗收  
Technology solution for the 198m<sup>2</sup> zinc concentrate fluidized roaster implemented by CINP Engineering Corporation Limited passes experts' acceptance inspection

長沙院聯合廣西南方有色集團開展 198m<sup>2</sup> 鋅精礦流態化焙燒爐的爐型結構、拋料方式、進風方式等研究，採用模擬仿真對爐體應力場、顆粒場、流場及溫度場進行了多場耦合數值仿真分析，開發結構最安全、生產效率與能源利用率最優的超大型流態化焙燒爐，是世界最大的鋅精礦流態化焙燒爐。6 月，該技術方案順利通過評審驗收。

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.



#### 技術驗收現場

Acceptance inspection meeting for the technology solution



中色科技“一種軋製寬幅鎂合金板帶的工藝”獲得第二十三屆中國專利優秀獎

“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

## 數字信息化

### Digital Informatization

中鋁國際順應時代發展，將數字化、信息化發展作為企業實現高質量發展的重要引擎，多措並舉推動企業實現智能化、信息化。2022年，中鋁國際“智能建造一體化管控服務平臺推動下屬施工企業數字化轉型”案例獲評中國上市公司協會數字化轉型“優秀案例”。

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).

#### 中鋁國際加快數字化建設：

CHALIECO accelerates the development of digitalization:



加快勘察設計企業數字化交付技術應用的開發，持續推進重大重點科研項目的數字化轉型工作，開展智能化應用新場景的研究和應用。

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.



加快實施施工企業 BIM 技術的應用，積極探索智慧工地建設，實現施工項目管控數字化和精細化。

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.



統籌建設工程技術管理信息系統，逐步形成業財融合一體化管控平臺，充分“賦能”中鋁國際各項管理活動。

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

數智引領，六冶以“信息化+BIM”深入推進智慧建造  
China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company  
uses “Informatization + BIM” to promote intelligent building

六冶以科技創新為理念，推動“信息化+BIM”技術應用普及，逐步將 BIM 技術引入工業工程、民用工程和鋁製品應用等多個領域，有效促進公司技術、生產和市場開發三位一體的協同管理，推動企業數字化轉型和高質量發展。

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.



安徽皖北醫院項目

Wanbei Hospital project in Anhui Province

## 知識產權保護

### Protection of Intellectual Property Rights

中鋁國際深入貫徹《企業知識產權管理規範》的國家標準 GB/T29490-2013，搭建知識產權管理體系，發佈《知識產權管理手冊》《知識產權管理制度控制程式匯編》等文件；全級次範圍內印發《知識產權相關法律法規匯編》，組織開展貫標大會、內審、外審會議，提升各部門及各員工知識產權的保護意識。2022 年，中鋁國際獲得知識產權管理體系認證證書，累計申請專利 381 件，其中發明專利 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.



發明專利

176 件

among which 176 were patents for invention

## 品質工程

### High-Quality Projects

中鋁國際按照集團“千方百計打造更多精品，積極參與各類質量獎申報，實施質量品牌提升”工作目標，踐行“質量就是生命”的理念，不斷打造優質工程、加強企業品牌建設，讓質量成為企業發展的“金鑰匙”。

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.

## 加強質量管理

### Strengthening Quality Management

中鋁國際遵守《中華人民共和國產品質量法》《建設工程質量管理條例》《建設工程施工項目管理規範》等相關國家法律法規，制定《中鋁國際直屬總承包項目項目管理辦法》《項目管理制度規定》等制度；通過推行競賽機制、建立資料庫等方式，多措並舉加強質量管理。2022 年，中鋁國際未發生給集團造成負面影響的質量事故。

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.

## 中鋁國際質量管理舉措：

### Quality management measures adopted by CHALIECO:

#### 01

分析質量控制問題及難點，促進各企業優勢互補

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

#### 02

開展競賽機制，推進質量交流

Carry out competition activities to promote exchanges on quality

#### 03

建立資料數據庫，提煉質量控制指標

Establish data banks to refine quality control indicators

#### 04

整合設計院及施工企業資源，形成以技術把控質量的模式

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

#### 05

以成品質量為控制重點，形成成品質量互評監督機制及對標學習渠道

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

以質量評價管理工作為推手，督促企業各項質量工作開展

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

#### 案例 Case

#### 九冶召開項目履約“三零”專項行動啟動會

Jiuye Construction Co., Ltd. launches “Three Zeros” special campaign

4月，為推進公司項目高質量發展，全面實現“三零”（即工期零延誤、質量零瑕疵、業主零投訴）目標，九冶組織召開項目履約“三零”專項行動啟動大會，會議壓實責任主體，以高標準、嚴要求提升項目管理水平。

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.

## 建設優質品牌

### Building Quality Brands

中鋁國際通過組織、指導各成員企業參加“質量工作十大先進案例”申報評選活動，督促企業開展質量獎項的申報，開展有色金屬行業 QC 質量管理小組活動，持續強化工程創優工作等，加強企業品牌建設。

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，中鋁國際共獲得：  
In 2022, CHALIECO won the following awards:

國家優質工程（金）獎 **3** 項

魯班獎 **1** 項

鋼結構金獎 **1** 項

省部級勘察、諮詢、設計、標準設計、工程成果獎共 **177** 項

各級 QC 成果獎項共 **90** 項

**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



貴陽院設計的雲南神火鋁業項目榮獲國家優質工程金獎

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

貴陽院設計的雲南神火鋁業有限公司 90 萬噸綠色水電鋁材一體化項目，項目團隊結合現場實際，制定嚴密施工計劃，引入先進技術設備，深度落實網格化管理，高質量完成項目任務交付。2023 年 1 月，此項目榮獲 2022—2023 年度國家優質工程金獎，是中國有色金屬行業第一次獲此殊榮。

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 2022, 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

長沙院環保升級搬遷改造項目獲有色金屬工業優質工程獎  
The environmental protection upgrading and relocation project of  
CINF Engineering Corporation Limited won quality project award

長沙院承包赤峰雲銅有色金屬有限公司環保升級搬遷改造項目，項目團隊合理利用項目資源，科學組織施工，積極開展技術攻關，該項目成功上榜 2020—2021 年度有色金屬工業優質工程表彰名單。

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.



赤峰雲銅有色金屬有限公司環保升級搬遷改造項目

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



九冶承建的新疆維吾爾自治區新華書店物流基地項目榮獲第十五屆“中國鋼結構金獎”

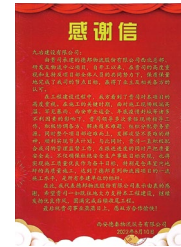
Xinjiang-based Xinhua Bookstores Logistics Base Project co-undertaken by Jiuye Construction Co., Ltd. won the gold prize of 15th China Construction Engineering Steel Structure Award



# 優質服務 High-Quality Services

中鋁國際圍繞市場和客戶多元化需求，制定實施《中鋁國際國內業務市場營銷管理辦法》《中鋁國際大客戶營銷管理辦法》等營銷管理制度；建立公司大客戶營銷管理體系，各單位協同發力，提升大客戶綜合服務能力，提升客戶滿意度；高度重視客戶權益保護，完善售後權益保護機制，積極響應客戶投訴，嚴格保密客戶隱私。2022年，客戶滿意度為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、十二冶收到業主感謝信

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



## 強化服務意識，中鋁國際召開 2022 年市場營銷會 CHALIECO holds 2022 marketing conference to enhance service consciousness

2月，中鋁國際召開2022年市場營銷會議，分析中鋁國際的優勢和發展潛力，明確中鋁國際的戰略定位，為增強服務業主、服務客戶的意識，全力打造創效創優的好項目打下堅實基礎。

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年市場營銷會

2022 marketing conference held by CHALIECO

# 03

## 環境責任

### ENVIRONMENTAL RESPONSIBILITY

#### 綠色低碳, 讓家園永續

Building a Better Community with Green and Low-Carbon Initiatives

生態環境是人類生存和發展的根基, 綠色也是中鋁國際的發展底色。中鋁國際緊隨國家綠色發展戰略, 積極投身綠色環保產業工程建設, 將響應雙碳目標、加強環境管理、落實綠色運營、打造低碳文化等多項指標作為低碳發展的主方向, 做“綠色工作”的踐行者和生態文明理念的積極傳播者, 為共建清潔美麗世界作出更大貢獻。

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.





## 響應雙碳

# Response to Carbon Peaking and Carbon Neutrality Goals

中鋁國際積極響應國家“3060”雙碳目標，落實中鋁集團《碳達峰碳中和行動方案》，通過減少碳排放相關舉措應對氣候變化，堅定走綠色低碳發展道路。

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

#### 綠色發展，九冶打造綠色新能源

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

九冶積極踐行綠色低碳發展理念，助力實現“雙碳”目標，不斷開拓新能源領域，中標建設的東海特鋼 1\*100MW 超高溫亞臨界煤氣發電、3GW 高效單晶光伏組件生產基地 B3 車間等項目，為九冶實現產品結構轉型、踐行“雙碳”行動助力。

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 項目

LONGi B3 workshop project

### 案例 Case

#### 搶抓“雙碳”機遇，貴陽院聚焦能源環保

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

貴陽院明確以新能源發展、能源轉化作為轉型發展方向入局光伏項目，成立分佈式光伏發電項目創效小組，對光伏項目案例及建模軟件進行系統的學習培訓，形成自身核心技術。2022年，貴陽院已完成或正在進行的光伏項目達到11項，全力以赴助力節能降碳。

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.

## 環境管理

## Environmental Management

中鋁國際深入踐行綠色發展理念，持續優化環境管理制度，完善管理體系，加強環境風險控制，嚴守生態環保紅線，以實際行動助力建設美麗中國。2022年，公司環保總投入3,423.10萬元。

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.

公司環保總投入

**3,423.10** 萬元

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

## 管理制度

## Management Systems

中鋁國際堅定以習近平生態文明思想為指導，嚴格遵守《環境保護法》《水污染防治法》《大氣污染防治法》《固體廢棄物污染環境防治法》等國家及運營所在地環保法律法規，組織開展節能環保各項管理工作。

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.

中鋁國際強化環境內部管理，堅持 HSE 體系及中鋁集團 CAHSE 體系並軌運行，對環境管理進行持續監督；修訂完善 QHSE 管理手冊及程序文件等內部制度，組織公司、分公司、項目部開展環境因素適用的安環類法律法規等識別評價及合規性評價工作，確保 QHSE 體系運行良好。2022 年，九冶通過 ISO14000、GB/T24001-2016 環境管理體系認證。

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.

## 環保預警及應急機制

### Environmental Early Warning and Emergency Mechanisms

中鋁國際完成《突發環境事件報告和調查規定》的修訂，加強環保風險控制，提高重大環境污染事件應急能力；對涉及環保設施項目進行安全風險排查，累計排查並整改 36 項問題及隱患。報告期內，中鋁國際未發生突發環境事件。

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.

## 綠色運營

### Green Operations

中鋁國際持續健全節能減排政策機制，組織實施節能減碳重點工程，推動資源利用效率大幅提高、主要污染物排放總量持續減少；加快構建綠色技術創新體系，打造綠色技術研發、應用推廣和產業發展有機整體；以環保節能為先導，打造綠色施工標杆；發揮材料優勢，實現鋁應用推廣，為用戶提供更清潔、更高效、更綠色的解決方案。

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.

## 資源管理

### Resource Management

中鋁國際持續制定完善資源管理制度，推進相關制度要求落實落地；優化能源結構，加快實現內部清潔能源轉型；提高用水效率，減少人均水資源消耗量。2022年，中鋁國際能源消耗總量1.14萬噸標準煤，節約用水22.3萬噸，天然氣消耗量223,793.16立方米，未發生節能違法違規事件。

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.



中鋁國際能源標準煤消耗總量

**1.14** 萬噸

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



節約用水

**22.3** 萬噸

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



天然氣消耗量

**223,793.16** 立方米

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

## 污染防治

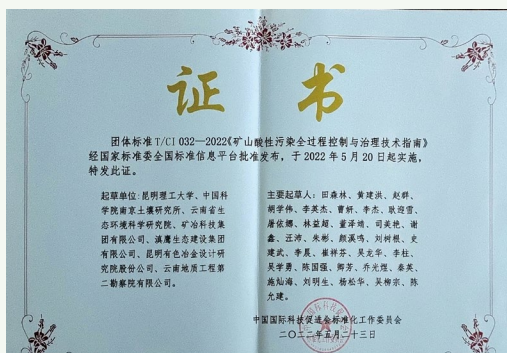
### Pollution Prevention and Treatment

中鋁國際嚴格按國家標準《污水綜合排放標準》（GB8978-1996）的要求進行污染物排放，持續修訂完善《固體廢棄物管理規定》《粉塵和毒物管理規定》等制度規定，推動生態環境質量持續改善。

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.

公司積極落實污染防治政策，確保廢氣、廢水等排放物達到排放標準的同時，積極推進廢水廢氣減排工作的開展；持續加強對施工現場、生產車間固廢（危廢）的管控力度，力求施工場所符合安全環保要求，收集、貯存、運輸、利用、處置固體廢物採取“防揚散、防流失、防滲漏”等防污染措施；危險固廢委託具有資質的單位進行轉移和處理。

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.



#### 昆明院參編的團體標準 T/CI032-2022《礦山酸性污染全過程控制與治理技術指南》獲批發布

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



#### 長沙院中金嶺南丹霞冶煉廠煉鋅渣綠色化升級改造項目整體聯動試車圓滿成功

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 CINP Engineering Corporation Limited was successfully completed



## 綠色技術研發 R&D of Green Technology

中鋁國際積極組織實施綠色技術的研究與推廣，依託工程項目在能源使用效率提升、廢氣有機處理、污染物排放控制與治理等領域展開技術研發和推廣應用。同時，中鋁國際從設計源頭出發，優先發展和推廣能夠解決行業難題的關鍵核心技術和產品。

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.

### 中鋁國際有色領域一流環保技術（列舉）

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

<p><b>瀋陽院</b> Shenyang Aluminum &amp; Magnesium Engineering and Research Institute Company Limited</p>	<p>炭素陽極智能堆垛機組及倉儲管理系統</p> <p>Carbon anode intelligent stacking unit and storage management system</p>	<p>提高堆垛天車調度水平，降低能耗，提高倉儲管理水平</p> <p>Improve stacking crane scheduling, reduce energy consumption, and enhance warehouse management</p>
<p><b>貴陽院</b> Guiyang Aluminum &amp; Magnesium Engineering and Research Institute Company Limited</p>	<p>鋁電解煙氣高效減排、節能低耗淨化技術</p> <p>High-efficient emission reduction, energy-saving and low-consumption purification technology for aluminum electrolytic flue gas</p>	<p>減少氧化鋁破損率和減少循環氧化鋁使用量，較大幅度提高淨化效率、減少污染物排放，根治鋁行業濕法脫硫廢水的“痛點”</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>長沙院</b> CINF Engineering Corporation Limited</p>	<p>磷酸鐵生產廢水資源化處理與循環利用成套技術</p> <p>Complete set of technology for resourceful treatment and recycling of wastewater from ferric phosphate production</p>	<p>實現磷酸鐵生產廢水中氮磷等有價資源綜合回收和廢水循環利用</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>長勘院</b> China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd.</p>	<p>微滲透負壓防滲淨化技術</p> <p>Micro-permeation negative pressure anti-permeation purification technology</p>	<p>阻止地表水進入渣庫，減少滲濾液處理量，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

#### 踐行“兩山”理念，長沙院研發低碳技術

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

長沙院研發的礦山尾礦資源低碳高值綜合利用一體化集成技術，成功應用於湖北大冶大紅山礦、廣東凡口鉛鋅礦等，為實現礦山尾礦資源化綜合利用、尾礦庫順利退出提供堅實保障。

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

#### 建設綠色礦山，長沙院引領綠色開採技術

CINF Engineering Corporation Limited leads development of green mining technologies

由長沙院承擔設計的廣西華錫集團有限公司銅坑鋅多金屬礦，採用國際先進的低成本大宗利用礦山固體廢料的充填等技術，引領我國深地資源綠色開發，已成為國家級綠色礦山試點單位。

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.



廣西華錫集團有限公司銅坑鋅多金屬礦

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

**案例**  
Case**九冶採用先進技術賦能環保工程**  
Jiuye Construction Co., Ltd. empowers environmental project with sophisticated technologies

九冶把鋼鐵廠燒結煙氣脫硫脫硝綜合治理提升改造項目作為轉型升級重點和主攻方向，採用先進的活性炭處理技術，實現陝鋼集團漢中鋼鐵有限責任公司 2×265 m<sup>2</sup>燒結煙氣綜合治理提升改造，為促進區域環境空氣質量持續改善起到積極的推動作用。

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.



陝鋼集團漢鋼 2×265 m<sup>2</sup>燒結煙氣綜合治理提升改造項目

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

## 綠色施工

### Green Construction

中鋁國際始終秉承綠色施工理念，建立綠色施工標杆，按照“六個百分百”目標進行管控，減少和減輕對周邊的影響；提高施工現場使用新材料、新工藝、新設備應用率，減少材料浪費，最大限度做到“四節一環保”；收塵、除煙裝置配備到位並有效運行，落實焊接、切割、噴塗作業生產車間的綠色運營。

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.

## 中鋁國際項目施工“六個百分百”目標：

CHALIECO International Project Construction "Six 100%" Target:

封閉管理百分百

100% of closed-off management

100%

道路硬化百分百

100% of road hardening

物料覆蓋百分百

100% of material coverage

100%

車輛清洗百分百

100% of vehicle cleaning

清潔保濕百分百

100% of cleansing and moisturizing

100%

密閉運輸百分百

100% of closed-off transport

## 鋁應用推廣

### Promotion of Aluminum Application

中鋁國際落實推進集團“擴大鋁應用，向鋁精深加工、價值鏈高端轉型”的發展戰略，不斷擴大鋁在基礎設施、電信產品、工業設備等方面的替代使用，推動以鋁代鋼和以鋁節木。

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.

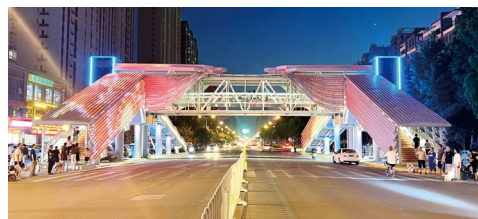
#### 案例 Case

#### 助力城市低碳發展，六冶擴大鋁應用

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陝西省咸陽市首座鋁合金人行天橋正式投入使用，為城市綠色低碳發展貢獻力量。

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.



陝西咸陽市鋁合金人行天橋

Pedestrian bridge made of aluminum alloys in Xianyang, Shaanxi Province

# 低碳文化

## Low-Carbon Culture

中鋁國際積極推進綠色文化宣貫，面向公眾傳遞環保理念，引導並帶動員工踐行低碳生產生活方式，深入開展生態保護工作，實現環保理念內化於心、外化於行，打造中鋁國際“綠色名片”。

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.

# 強化環保理念

## Enhancing Environmental Protection Ideas

中鋁國際開展各類環保宣傳和專項培訓活動，積極參與生態環保公益實踐，爭做保護生態的先行者、倡導者和引領者，讓綠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.



中鋁國際開展“落實雙碳行動，共建美麗家園” 低碳日宣傳活動

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

# 倡導綠色生活

## Advocating Green Lifestyle

中鋁國際鼓勵員工節約每度電、每滴水，下班前主動檢查關閉電源，避免長明燈、空流水的現象；推動實行無紙化辦公，通過建設“無紙化”會議系統等措施，減少氮氧化物和二氧化硫的排放；倡導綠色出行理念，市內出行首選乘坐公車、騎自行車或步行等方式。

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 NO<sub>x</sub> and SO<sub>2</sub> 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.

## 開展生態保護

### Conducting Ecological Protection

中鋁國際在生產施工過程中融入生物多樣性保護理念，降低業務經營對生物多樣性及生態的影響，實現與環境融合、與生物共榮；積極參與生態修復項目，不斷加大生態修復力度，改善生態環境質量，為共同構建地球生命共同體貢獻力量。

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

#### 昆勘院實施環境整治及土地複墾工程

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

昆勘院通過實施廠區內遺留建構築物拆除及安全處置、生產區場地污染土壤修復治理等，對雲南景毅礦冶有限公司選冶廠場地進行環境整治，使周圍土壤、地表水及地下水的污染及危害得到控制，項目區生態環境得到恢復。

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.



環境整治前後對比

Comparison of before and after treatment

### 案例 Case

#### 昆明院助力礦區變綠洲

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

4月，昆明院設計的五個歷史遺留硫磺冶煉廢渣綜合治理及生態恢復工程通過初步驗收，該項目解決了“區域適生植物組合選別”“臨河廢渣防流失”等多個固廢處置和生態修復技術難題，助力推進赤水河流域生態治理與修復。

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.



環境整治前後對比

Comparison of before and after treatment

### 案例 Case

#### 打造生態寶地，六冶開展嵩縣綠色低碳生態項目

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

六冶實施的嵩縣環陸渾湖生態治理及綜合提升項目，通過綠化種植、景觀橋建設及園建工程三大施工方向，將區域打造成具有生態屏障、生態涵養功能的濱水景觀廊道，保護陸渾湖國家濕地公園和洛陽市飲用水源地的同時，推動嵩縣社會經濟發展。

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.



嵩縣環湖項目“彩虹色”樂道橋

The colorful Ledao Bridge of the project

# 04

## 員工責任

### RESPONSIBILITY FOR EMPLOYEES

#### 助力成長, 讓人才湧流

Facilitating Career Development and Unleashing Creativity of Talented People

員工是企業發展的基石, 只有不斷塑造人才個人價值, 才能更好地實現企業共創。中鋁國際重視並積極維護員工的各項合法權益, 通過建立系統化、制度化的員工晉升體系和培訓體系, 為員工提供平等的學習成長機會, 關注員工身心健康, 築牢安全生產防線, 關心關愛員工生活, 攜手員工創造公平、和諧、幸福的工作環境。

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

# 權益保障

## Rights and Interests Protection

中鋁國際嚴格遵守《勞動法》《未成年人保護法》等法律法規，堅決反對任何形式的童工與強制勞工等非法用工形式，在工作時長、休假、個人隱私保護等多方面保障員工權益，與員工共建健康和諧、穩定共贏的勞動關係。報告期內，公司未發生使用童工及強制勞工等違規情況。

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 年中鋁國際員工情況 (單位: 人)

Employees at CHALIECO in 2022 (Unit: person)

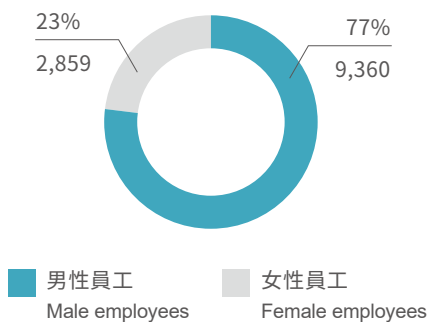
員工總人數

Total number of employees

12,219

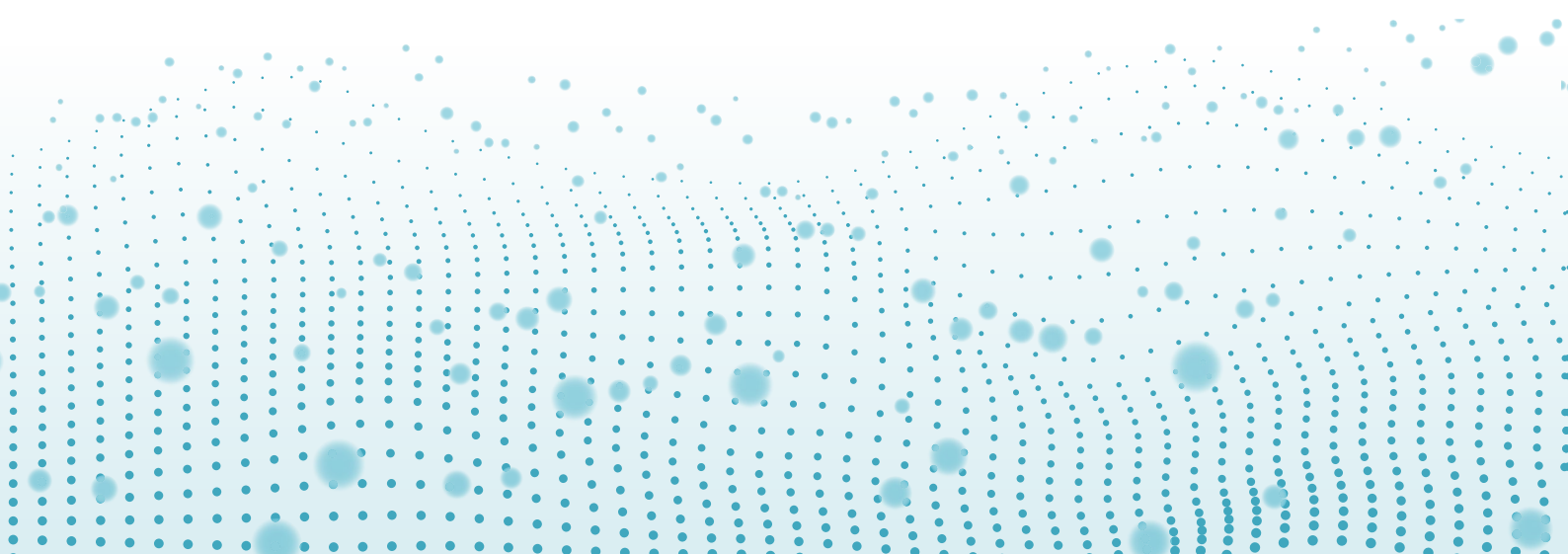
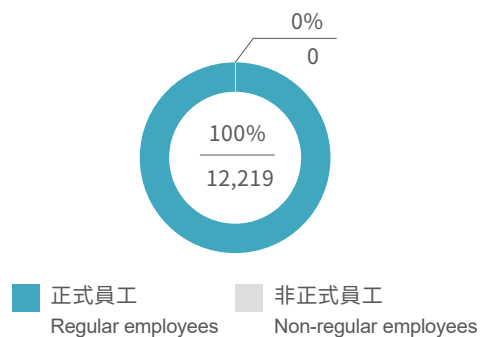
#### 按性別劃分的員工人數

Number of employees by gender

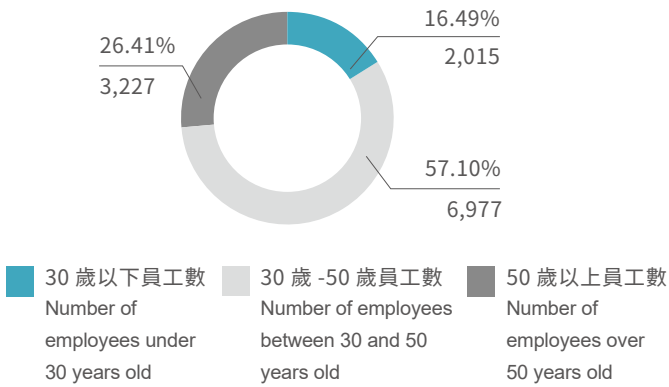


#### 按僱傭類型劃分的員工人數

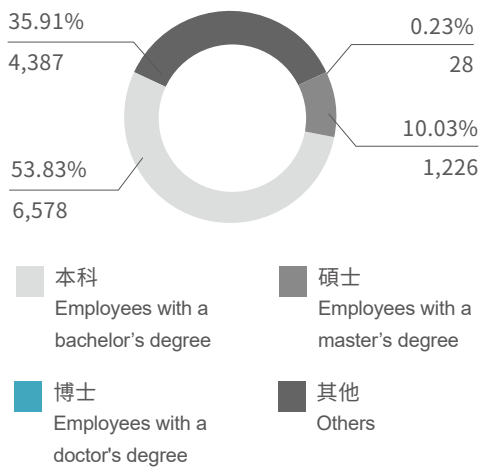
Number of employees by type of employment



按年齡劃分的員工人數  
Number of employees by age

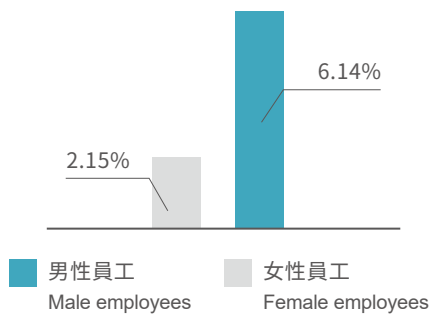


按學歷劃分的員工人數  
Number of employees by education background

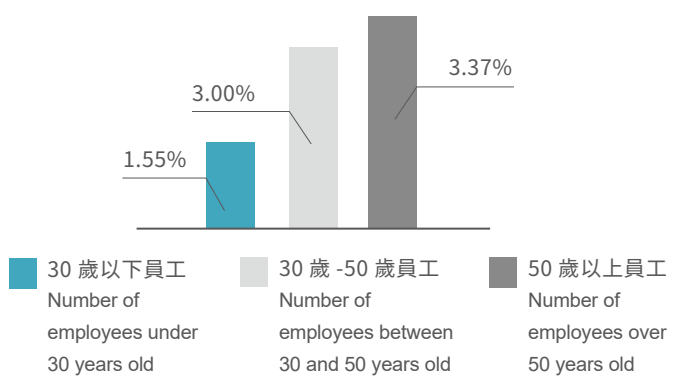


2022 員工流失率  
Employee turnover in 2022 **8.42%**

按性別劃分的員工流失比例  
Employee turnover by gender



按年齡劃分的員工流失比例  
Employee turnover by age



## 平等僱傭

### Equal Employment

中鋁國際堅持性別、民族、信仰、年齡無差別的僱傭原則，保證招聘過程程序合規、流程規範，確保所有員工依法享有各項權益和公平公正的待遇，為員工打造多元包容、公平透明的職場環境。2022 年，未發生重大勞動爭議和人權投訴問題。

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

中鋁國際不斷規範和完善員工薪酬管理制度，依法為員工繳納社會保險和公積金，為員工提供具有行業競爭力的薪酬體系和福利保障機制；增強薪酬待遇對科技人才的激勵效果，充分調動員工積極性；完善優化海外人才薪酬結構和收入水平。

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

中鋁國際落實員工民主管理，充分發揮以職代會為基礎形式的民主管理機制，嚴格履行民主程序，通過召開職代會，切實保障員工的知情權、建議權、參與權和監督權。

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.



中鋁國際召開職工代表大會  
Employees' congress held by CHALIECO

# 員工發展

## Employee Development

中鋁國際堅持人才強企理念，暢通人才發展通道，完善優化人才培訓體系，為員工提供釋放能力、實現價值的舞臺，為公司“科技+國際”發展戰略提供有力的幹部人才支撐。

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.”

### 暢通晉升通道

#### Building Smooth Promotion Channels

中鋁國際針對性做好培養、選拔，鼓勵專業技術人員立足本職工作崗位，建立健全專業技術人員職業發展通道，讓每一位員工都能在公平、公正的競爭環境下發揮自我價值，與公司共同成長。

2022年，共49人通過了初、中級職稱評審及高級職稱初審，通過率為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.



2022年，共49人通過了初、中級職稱評審及高級職稱初審，

通過率為 **89%**

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.



## 重視人才培養

### Focusing on Talent Cultivation

中鋁國際高度重視員工的學習成長，聚焦不同類別、不同層級員工的能力提升，制定一系列員工培訓方案，明確培養方式，搭建完整的培訓體系。2022 年，公司本部共舉辦中鋁國際講堂 24 期、中鋁國際夜校 8 期，公司全級次企業累計培訓 28,686 人次，培訓投入 738.19 萬元，培訓時長 283,428.00 小時。

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.



公司全級次企業累計培訓

**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



培訓投入

**738.19** 萬元

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



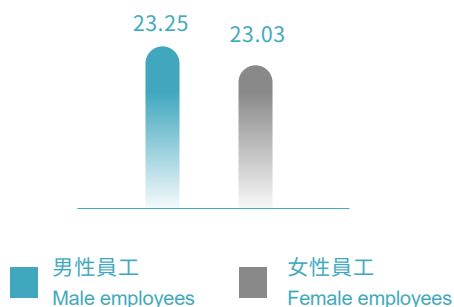
培訓時長

**283,428.00** 小時

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

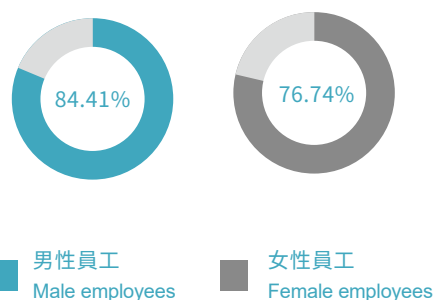
人均培訓小時數 (小時)

Number of training hours per capita (hour)



按性別劃分員工培訓比例 (%)

Proportion of employee training by gender (%)



案例  
Case

## 中鋁國際開展青年素養提升工程

CHALIECO conducts program to improve knowledge and skills of young employees

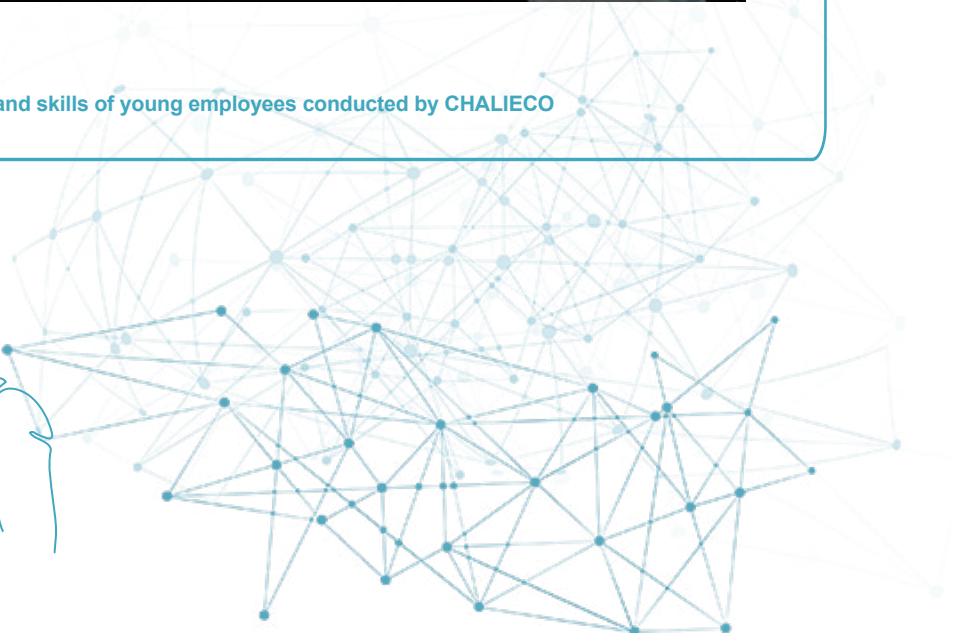
6月，中鋁國際青年素養提升工程在長沙院召開，公司董事長李宜華為廣大團員青年講授“青年精神素養提升第一課”，為廣大青年成長成才指明前進方向。

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.



青年素養提升工程現場

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



# 健康與安全

## Health and Safety

中鋁國際注重員工健康與安全，嚴格遵循《職業病防治法》《安全生產法》《生產安全事故應急條例》等相關法律法規，採取一系列措施保障員工身心健康；加強安全管理，築牢安全防線，保證員工以健康的體魄和積極的心態投入工作。

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.

## 職業健康管理

### Enhancing Occupational Health Management

中鋁國際不斷優化職業健康管理體系，制訂《安全環保健康責任規定》《職業健康安全和環境委員會工作規則》，定期開展健康知識培訓，落實員工健康體檢、女性員工和特殊崗位專項體檢及心理健康援助工作，嚴格做好疫情防護，及時發放防疫用品，全方位保衛員工的身心健康。

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

關愛身心健康，天津建設開展年度員工體檢  
CHALIECO (Tianjin) Construction Co., Ltd. organizes employees to conduct annual physical examination

8月，天津建設組織天津區域員工開展年度健康體檢，通過全面細緻的檢查，達到疾病“早預防、早診斷、早治療”的目的，切實保障員工身體健康。

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.



員工年度體檢現場

Annual physical examination for employees



## 築牢安全防線 Building Solid Line of Defense

中鋁國際深入踐行“一切風險皆可控制、一切事故皆可預防”的安全管理理念，不斷完善優化安全生產管理體系和應急管理機制，開展系列隱患排查、安全培訓、應急演練等活動，提升員工安全生產意識，切實保障員工生命安全。2022年，公司安全生產投入13,101.29萬元。

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.

### 加強安全管理 Strengthening Safety Management

中鋁國際堅持CAHSE及QHSE體系並軌運行，將質量、健康、安全、環境納入風險管控體系，開展企業自評、中鋁集團和中鋁國際分級審核、第三方外部審核，提高企業安全環保管理的制度化、規範化及體系化水平。

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.

#### 強化制度體系 建設

Improving systems  
and mechanisms

公司制訂《2022年安全環保工作要點》，對全年安全環保重點工作進行詳細部署。

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.

#### 狠抓責任落實 考核

Enhancing  
responsibility  
implementation and  
evaluation

公司推進安全環保質量責任落實及考核，與各單位簽訂年度安全環保質量責任書，促進責任落實；編制修訂2022年全員安全環保一崗雙責清單，完善《六必須安全考核實施細則》，強化落實考核工作。

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.

## 開展隱患排查

### Conducting Potential Risk Inspection

中鋁國際聚焦項目現場及生產一線，本著“一級督查一級”的原則，堅持開展公司專項督查及巡視巡查，組織開展重點項目、重點專業的專項排查，定期開展交叉互查工作，建立安全隱患排查的長效機制。

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

#### 築牢防線，長勘院紮實開展安全生產大檢查活動

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

9月，長勘院圍繞安全風險辨識、安全隱患排查等要點，開展項目現場實地指導、督促及檢查項目現場安全生產工作，提升從業人員安全意識，推動各生產單位全面落實安全生產責任。

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.



#### 長勘院檢查組現場指導工作

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

## 提升安全意識

### Improving Safety Consciousness

中鋁國際以安全生產月等活動為抓手，深入開展安全法規培訓、應急演練等活動，增強員工安全意識、提升員工安全能力、規範員工安全行為。2022年，參加安全生產培訓員工55,301人次，安全培訓覆蓋率達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.



六冶洛陽公司舉辦安全生產月活動

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



九冶在寶雞創新大廈項目舉辦應急演練觀摩會

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



2022年，參加安全生產培訓員工

**55,301** 人次

In 2022, a total of **55,301** employees participated in work safety training programs



安全培訓覆蓋率達

**100%**

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

## 員工關懷 Employee Care

中鋁國際大力實施員工關愛工程，努力構建“陽光、坦誠、簡單、友善”的員工關係。針對退休員工、困難員工、女性員工等不同群體制定多項關愛措施，注重員工工作與生活的平衡，組織開展豐富多樣的員工活動，努力打造有溫度的職場。2022年，公司建立“為群眾辦實事”長效機制，員工對辦實事滿意度達到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.



滿意度達到 **95%** 以上

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

## 慰問幫扶員工 Employee Assistance Programs

中鋁國際在元旦、春節等節日期間組織慰問一線員工，為員工及其家屬發放禮品、表達問候；用心用情做好困難員工關懷幫扶工作，有的放矢地將幫扶工作做到實處。

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.



瀋陽院慰問老專家

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



中色科技慰問離退休老同志

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

## 工作與生活平衡

### Balance of Work and Life

中鋁國際倡導員工工作與生活的平衡，組織開展豐富多元的文娛活動，充實員工的業餘文化生活，增進員工之間交流，增強員工的參與感、歸屬感與幸福感，營造溫馨團結的工作氛圍。

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.



中鋁國際組織開展迎“三八”主題系列活動

CHALIECO held a series of activities to celebrate the International Women's Day



貴陽院舉辦喜迎二十大籃球賽

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



長勘院成功舉辦“青春心向党、凝心齊聚力”員工運動會

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

# 05

## 夥伴責任

### RESPONSIBILITY FOR PARTNERS

#### 同行共進, 讓力量匯聚

Gathering Strength to Achieve Win-Win Results

面對嚴峻複雜的國內外形勢, 中鋁國際堅持誠信經營、公平競爭, 加強供應商管理, 打造責任供應鏈, 不斷深化與相關方的戰略合作, 組織或參與行業交流, 不斷擴大互惠共贏的“朋友圈”, 為構建命運共同體貢獻力量。

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.





## 責任供應鏈

### Responsible Supply Chain

中鋁國際堅持規範採購，不斷完善採購流程，重視對供應商、分包商的責任管理，促進供應商履行社會責任，打造安全、綠色、高質量發展的有色金屬產業鏈。

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.



## 實施陽光採購

### Transparent Procurement

中鋁國際遵守《招標投標法》《反不正當競爭法》等國家法律法規，制定了工程招投標實施細則及相關管理監督辦法，規範公司及下屬企業採購管理，明確採購原則及流程。通過對所屬成員企業開展招投標檢查、宣貫招投標法規及制度、定期組織自查自糾等工作，加強招投標管理。2022年，中鋁國際對全部12家成員企業開展工程建設領域招投標專項檢查，相關企業及時開展整改工作。

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.

## 供應商管理

### Supplier Management

中鋁國際加強供應商管理，持續完善供應商管理體系，公司及各成員企業修訂完善《供應商管理辦法》《分包商管理規定》等，規範供應商准入、評價、退出等三個管理環節，降低供應鏈風險。

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:** 公司要求供應商提供 QHSE 管理體系與認證文件；並優先考慮使用環保節能產品的供應商。  
**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.



**評價:** 在生產施工期間，公司通過分包商過程管控及獎懲考核機制，對分包商隊伍資質、能力、信譽、素質等進行綜合考評，動態調整合格分包商名錄；將分包商納入項目安全環保教育培訓管理中，定期組織考評，敦促分包商落實好現場安全環保責任。  
**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:** 公司對分包商用工管理、安全環保工作落實情況進行監管，對有違反法律規定的用工行為、發生突發性環境事件的分包商等，將對其清退並列入黑名單。  
**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 年供應商數目 (個)

總計 **5,267**

Number of suppliers in 2022 (nos.)

5,267 suppliers in total

東北 <b>187</b> Northeast China	華北 <b>512</b> North China	華南 <b>583</b> South China	華中 <b>1,343</b> Central China	華西 <b>1,535</b> West China	華東 <b>1,107</b> East China
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# 戰略合作 Strategic Cooperation

中鋁國際致力於搭建戰略共享機制和平臺，堅定構建長期性、戰略性協同發展的夥伴關係，拓展與政府、企業、科研院所及高校的合作，攜手譜寫互惠共贏的合作新篇章。

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.



中鋁國際與國核電力院簽訂戰略合作框架協議

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



瀋陽院與國家電投集團鋁電投資有限公司簽訂戰略合作協議

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

# 行業共建

## Joint Efforts for Industry Development

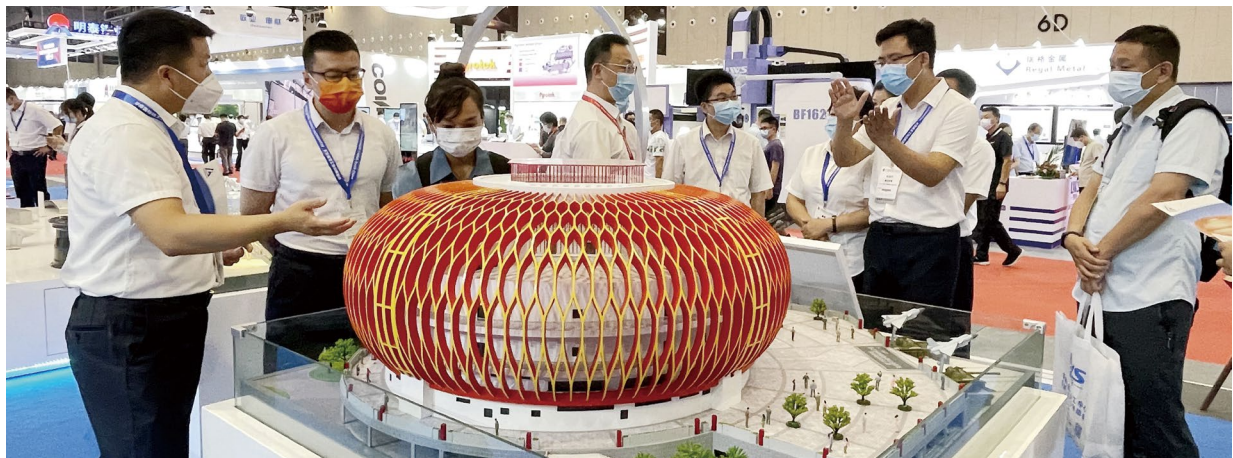
中鋁國際不斷深化國內外、行業內外合作交流，積極主動加強與多方的溝通，探索多方合作路徑，凝聚合作共識，持續提升行業影響力和話語權。

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.



中鋁國際參加 P20 中國建造（2022）管理創新峰會

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



六冶鋁應用拳頭產品亮相 2022 華南國際鋁工業展覽會

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

## 公共責任

RESPONSIBILITY FOR THE COMMUNITY

### 大愛無疆, 讓溫暖傳遞

Contributing to Society with Great Love

中鋁國際始終堅持企業發展與服務社會同頻共振, 聚焦民生領域, 用實幹精神扎實推進鄉村振興, 主動作為造福一方百姓; 積極開展志願者活動, 用實際行動踐行央企擔當; 深耕“一帶一路”, 追求企業與所在區域共同發展和成長, 以真情和真心鋪築萬家幸福路。

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





## 鄉村振興 Rural Revitalization

中鋁國際牢記初心使命，認真貫徹習近平總書記重要指示批示精神，按照中鋁集團的統籌安排，積極投身鄉村振興，履行社會責任擔當。2022年，中鋁國際各成員企業鄉村振興項目投入 254.14 萬元，項目惠及 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，中鋁國際各成員企業鄉村振興項目投入

**254.14** 萬元

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



項目惠及

**10,734** 人

benefiting **10,734** people

### 案例 Case

#### 科技賦能，長沙院灌溉方案助力鄉村振興建設

The irrigation project of CINF Engineering Corporation Limited facilitates rural revitalization

6月，長沙院設計的光伏灌溉項目在廣西克長鄉梅達村的特色種植試點基地投入使用。該項目採用“光伏發電+潛水泵+儲水罐”灌溉方案新理念，具有綠色環保、能源轉化利用率高、可行性強等優勢，解決了當地莊稼地的灌溉難題，為鄉村振興建設帶來切實成效。

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.



長沙院光伏灌溉項目建成落地

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

## 案例 Case

### 打造示範，中色科技助力雲南茶臘村

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

中色科技積極響應國家鄉村振興戰略，採取“基礎設施+產業發展+文化振興+動力提升”的綜合幫扶舉措，承建“丙中洛鎮茶臘鄉村振興示範村項目”。2022年，茶臘村項目基礎設施逐漸完善，帶動當地村民就業增收的同時，助力怒族傳統文化傳承發展。

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.



### 茶臘村怒族文化特色村落

Chala Village with the characteristics of Nu people culture

“茶臘村地處怒江大峽谷山谷之中，以前我們村碰上下雨天，路都變成爛泥路，如今的茶臘村進村的路都鋪上了水泥和特色石板，我們有休閒魚塘、遊客服務中心、高端民宿……其他村子的人都可羨慕我們啦！”

“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!”

——茶臘村村民李向  
— Li Xiang, a villager of Chala

# 志願服務

## Volunteer Services

中鋁國際秉持愛心向善的初心，持續組織對外捐贈工作和公益志願服務，全面推進公益慈善事業品牌化發展，鼓勵下屬企業開展公益助學、愛心捐贈等公益活動。截至 2022 年末，中鋁國際註冊青年志願者 1,066 人，年度志願者服務總時長 3,605 小時，企業捐贈總額為 8.7 萬元。

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.

註冊青年志願者

**1,066** 人

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

企業捐贈總額為

**8.7** 萬元

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

### 案例

Case

守護春苗，貴陽院赴小學進行愛心幫扶活動  
Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited conducts educational assistance program

“六一”國際兒童節到來之際，貴陽院前往貴陽大地村小學進行“大愛無疆、共護春苗”愛心幫扶活動，向全校同學捐贈物資，與師生們共度“六一”。截至 2022 年，貴陽院冶金青年志願服務隊定點幫扶貴陽大地村小學已長達十載，被評為中鋁集團優秀青年志願服務隊。

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.



長勘院青年志願者聯合當地社區為金婚、銀婚夫妻拍攝免費婚紗照

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



十二冶志願者化身“白袍戰士”配合社區疫情防

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



公司積極響應國家號召，踐行中央企業責任，強化社會責任建設，助力中小企業紓困等款項清付工作，2022 年支出同比增加 16 億元。

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.

## 海外履責

### Overseas Responsibility Fulfillment

中鋁國際積極踐行“走出去”戰略和“一帶一路”倡議，充分利用國內外兩個市場兩種資源，以優質工程為美麗世界添磚加瓦；以海外項目建設為載體，推進海外用工本地化，積極履行海外社會責任，以實際行動造福當地員工。

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.

## 拓展境外業務

### Expanding Overseas Business

中鋁國際不斷加大海外市場資源投入，推動重大項目合作進程，年內簽署多項重大海外勘察設計合同，如印尼 LEI 濕法 HPAL 項目、美國 ANOVION 石墨化車間項目、印度 JSG 熔鑄項目等；重構海外業務發展中心、重建駐海外營銷機構，初步形成“1+N+1”海外營銷體系。

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**踐行“科技 + 國際”，貴陽院積極開拓國際市場**

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

貴陽院踐行“科技 + 國際”發展戰略，以一系列技術“專利群”，搶抓各海外區域市場，新簽中亞區域市場的電極、電解鋁、電解餘熱利用、脫硫項目及印度區域市場的鋁加工項目等多份合同，合同金額超 2,000 萬人民幣，逐步成長為在國際上具有實力的鋁工業技術輸出商、供應商。

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 石油焦煅燒項目交流**

Exchange activity on Pertamina petroleum coke calcination project in Indonesia

## 海外員工關愛

### Caring about Overseas Employees

中鋁國際關注海外員工的生活狀況和身心健康，重點關愛員工及其家庭生活情況，關照困難員工；嚴格按照公司安全管理要求，保證現場施工人員生命安全；嚴格按照我國和當地防疫政策要求，保證出國人員疫苗接種率，並定期為員工發放防疫用品。

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

#### 溫暖後方，六冶慰問海外員工家屬

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

為切實做好海外員工關心關愛工作，六冶在節假期間開展慰問海外員工家屬活動，全力為海外員工解除後顧之憂。

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.



#### 六冶中秋慰問海外員工家屬

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

# 未來展望

## Future Prospect

百舸爭流，奮楫者先；

千帆競發，勇進者勝。

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

2023 年是全面落實黨的二十大精神的開局之年，是中鋁國際落實高質量發展戰略關鍵的一年。站在新的起點上，中鋁國際繼續堅持以習近平新時代中國特色社會主義思想為指導，深入學習宣傳二十大精神，牢記“國之大者”，堅持“科技+國際”的發展戰略，著重增強企業“競爭力”“創新力”“控制力”“影響力”“抗風險能力”，努力建設國內一流、全球有核心競爭力的有色金屬工程技術公司，努力成為有色行業技術引領者、有色工程建設主力軍、基礎設施及民用工程建設生力軍。

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.



# 附錄

## Appendix

### 關鍵績效

### Key Performance Indicators

指標 Indicators	2020	2021	2022
<b>經濟責任 Economic responsibility</b>			
總資產 (萬元) Total assets (RMB10,000)	5,593,193.83	6,002,275.67	4,739,128.86
淨資產 (萬元) Net assets (RMB10,000)	1,564,907.86	1,636,472.27	1,045,505.73
營業收入 (萬元) Operating revenue (RMB10,000)	2,471,782.33	2,389,872.34	2,369,732.89
納稅總額 (萬元) Total tax payment (RMB10,000)	82,354.51	74,618.03	82,344.74
研發資金投入 (萬元) Investments in R&D (RMB10,000)	60,416.00	76,012.72	91,206.62
研發人員數量 (人) Number of R&D personnel (person)	2,286	2,584	2,479
累計有效專利數 (件) Cumulative number of valid patents (piece)	2,240	2,406	2,832
其中：發明專利 (件) Among which: Patents for inventions (piece)	1,029	1,061	1,120
完成專利受理 (件) Number of patent applications accepted (piece)	317	313	381
其中：發明專利 (件) Among which: Patents for inventions (piece)	154	133	176
新增專利授權 (件) Number of newly added authorized patents (piece)	240	303	312
其中：發明專利 (件) Among which: Patents for inventions (piece)	42	65	80
企業規章制度法律審核率 (%) Legal review rate of corporate rules and regulations (%)	100	100	100
企業經濟合同法律審核率 (%) Legal review rate of corporate business contracts (%)	100	100	100
企業重要經濟決策法律審核率 (%) Legal review rate of important corporate business decisions (%)	100	100	100
守法合規培訓次數 (次) Number of legal compliance training sessions (time)	6	8	18
守法合規培訓時長 (小時) Number of hours for legal compliance training (hour)	26	30	36
召開董事會 (次) Number of board meetings held (time)	7	6	12

指標 Indicators	2020	2021	2022
召開股東大會 (次) Number of general shareholders' meetings held (time)	3	3	3
供應商總數 (個) Number of suppliers (nos.)	5,169	4,272	5,267
因社會責任不合規被否決的潛在供應商數量 (個) Number of potential suppliers rejected for non-compliance of social responsibility (nos.)	62	26	8
報告期內審查的供應商數量 (個) Number of suppliers reviewed during the reporting period (nos.)	5,169	4,272	5,267
因社會責任不合規被中止合作的供應商數量 (個) Number of suppliers suspended for non-compliance of social responsibility (nos.)	0	0	0
供應商社會責任 /ESG 培訓次數 (次) Number of CSR/ESG trainings for suppliers (nos.)	0	0	0
投訴解決率 (%) Complaint resolution rate (%)	100	100	100
<b>社會 Social responsibility</b>			
員工人數 (人) Number of employees (person)	14,633	12,489	12,219
報告期內吸納就業人數 (人) Number of newly recruited employees during the reporting period (person)	905	30	76
體檢覆蓋率 (%) Coverage of physical examination for employees (%)	100	100	100
健康檔案覆蓋率 (%) Coverage of health record (%)	100	100	100
勞動合同簽訂率 (%) Signing rate of employment contracts (%)	100	100	100
集體合同覆蓋率 (%) Coverage of collective contracts (%)	100	100	100
社會保險覆蓋率 (%) Coverage of social insurance (%)	100	100	100
通過申訴機制申請、處理和解決的員工申訴數量 (個) Number of employee complaints filed, handled and solved through complaint mechanism (nos.)	0	0	0
女性管理者人數 (人) Number of female managers (person)	1,367	1,410	1,441
中層管理者中女性管理者占比 (%) Proportion of female managers in middle management (%)	29	31	31.66
少數民族員工占比 (%) Proportion of ethnic minority employees (%)	4.42	4.59	4.56
本地化僱傭比例 (%) Localized employment rate (%)	81	86	88
人均帶薪休假天數 (天) Days of paid leaves per capita (day)	10.25	10.00	10.49
員工培訓投入 (萬元) Investments in employee training (RMB10,000)	921.38	880.62	738.19

指標 Indicators	2020	2021	2022
員工培訓人次 (人次) Number of participants of employee training (person-time)	12,546	29,971	28,686
員工培訓時長 (小時) Number of hours for employee training (hour)	108,838.60	123,629.80	283,428.00
員工薪酬同比增長 (%) YOY growth of employee compensation (%)	2.90	1.77	3
殘疾人雇用人數 (人) Number of people with disabilities employed (person)	88	85	78
安全教育與培訓人次 (人次) Number of participants in safety education and training (person-time)	52,685	54,560	55,301
安全教育與培訓時長 (小時) Number of hours for safety education and training (hour)	96,855	98,650	99,285
安全生產事故數 (件) Number of work safety accidents (time)	1	0	1
因工傷損失工作日數 (天) Lost days due to work injury (day)	6,000	0	6,106
輕傷 / 重傷人數 (人) Number of people suffering minor/serious injuries (person)	-	-	1
員工群眾來訪接訪率 (%) Reception rate of visits of employees and other stakeholders (%)	100	100	100
來信來函受理率 (%) Handing rate of letters and mails (%)	100	100	100
慈善捐助總額 (萬元) Total charitable donations (RMB10,000)	38	154.44	8.7
<b>環境 Environmental responsibility</b>			
環保總投入 (萬元) Investments in environmental protection (RMB10,000)	3,015.29	12,807.37	3,423.10
能源消耗總量 (噸標準煤) Total energy consumption (tce)	33,013.92	35,279.40	11,362.05
萬元營收能源消耗強度 (噸標準煤 / 萬元) 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
天然氣使用量 (立方米) Natural gas consumption (m <sup>3</sup> )	593,600.00	346,075.00	223,793.16
用電量 (萬千瓦時) Electricity consumption (10,000 kWh)	8,273.92	8,534.90	5,418.74
總用水量 (噸) Total water consumption (ton)	897,349.00	725,006.00	199,459.76
用水強度 (噸 / 萬元) Water consumption intensity (ton/RMB10,000)	0.39	0.31	0.68
無害廢棄物排放量 (噸) (廚餘垃圾、建築垃圾等) Discharge of non-hazardous waste (ton) (kitchen waste, construction waste, etc.)	4,399.73	4,639.57	730.5

指標 Indicators	2020	2021	2022
萬元營收無害廢棄物排放強度 (噸 / 萬元) Non-hazardous waste discharge intensity per RMB10,000 of operating revenue (ton/RMB10,000)	0.0018	0.0019	0.0003
有害廢棄物排放量 (噸) (硒鼓、廢棄燈管等) Discharge of hazardous waste (ton) (toner cartridges, damaged light tubes, etc.)	1.15	2.53	0.17
萬元營收有害廢棄物排放強度 (噸 / 萬元) Hazardous waste discharge intensity per RMB10,000 of operating revenue (ton/RMB10,000)	$4.65 \times 10^{-7}$	$1.06 \times 10^{-6}$	$7.17 \times 10^{-8}$
環保培訓人次 (人次) Number of participants in environmental protection training (person-time)	12,866	13,588	13,999
環保培訓覆蓋率 (%) Coverage of environmental protection training (%)	29	31	33
萬元產值能耗 (噸標準煤 / 萬元產值) Energy consumption per RMB10,000 output value (tce/ RMB10,000 output value)	0.0386	0.0356	0.0288
年度節能總量 (噸標準煤) Annual total energy saved (tce)	30	35	41
年度新鮮水用水量 (噸) Annual fresh water consumption (ton)	15,676	16,859	142,463
再生水使用量 (噸) Amount of reclaimed water used (ton)	3,865	3,999	4,406
工業固體廢棄物重複利用率 (%) Industrial solid waste reuse rate (%)	100	100	100
固廢處置合規率 (%) Compliance rate of solid waste disposal (%)	100	100	100
主要污染物排放達標率 (%) Compliance rate of major pollutant emissions (%)	100	100	100
辦公用電量 (萬千瓦時) Electricity used in office buildings (10,000 kWh)	8,273.92	8,534.90	7,230.48
辦公用水量 (萬噸) Water used in office buildings (10,000 tons)	89.73	72.50	70.23



# 指標索引

## Index Guide

目錄 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
報告導讀 Report Introduction		匯報範圍 Reporting Boundaries	1.1、1.3、8.5	P1.1、P1.2、P1.3
董事長致辭 Message from the Chairman		-	8.4	P2.1、P2.2
董事會 ESG 管治聲明 ESG Governance Statement from the Board		管治架構 Governance Structure	2.1.1	P2.1、P2.2、G2.1、G2.2、G2.3
關於我們 About Us		-	3.5.14、5.2、6.5.4、6.5.7、8.3、8.4、8.8	P4.1、P4.2、P4.3、P4.4
可持續發展管理 Sustainable Development Management	組織體系 Organizational System	管治架構 Governance Structure	7.1.3、8.3、8.5、8.6、8.14、8.8、8.12	G3.1、G3.2、G3.3、
	可持續發展行動 Sustainable Development Actions	-	-	-
	利益相關方溝通 Communication with Stakeholders	匯報原則：重要性 Reporting Principles: Materiality	7.2.1、7.2.3、7.4.4、8.5、8.6、8.10	G1.10、G1.11、G3.6、G3.7
	重大議題識別 Material Issue Identification	-	8.9	G3.5
企業榮譽 Awards and Honors		-	-	G3.11
中鋁國際責任數字 Social Responsibility Performance in Figures		-	-	P3.1
責任專題 Responsibility Focus	聚焦“從 0 到 1”，培育核心技術 Developing Core Technologies from “Zero to One”	A4、A4.1	-	P3.1
經濟責任   固本築基，讓發展致遠 Economic Responsibility: Building Foundation for Sustainable Development	公司治理 Corporate Governance	B7、B7.1、B7.2、B7.3	2.1.1、2.1.2、2.1.3、2.1.15、2.3.5、3.1.1、3.5.12、6.5.4、6.5.5	G1.1、G1.2
	改革收官 Completion of the Reform		-	V1.3、V1.4
	合規管理 Compliance Management		4.1.1、8.1、8.2	G1.3、G1.5
	風險防範 Risk Prevention and Control		5.1、5.16	-
	黨的建設 Party Building		8.2	-
	反腐倡廉 Anti-Corruption and Integrity Upholding		3.5.2	G1.7、G1.8

<sup>2</sup> 我們遵循港交所《環境、社會及管治報告指引》“不遵守就解釋”條文，對未披露指標 A1.2、A1.5、A2.5、B6.1、B6.3 做出如下解釋：

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 受業務性質及業務範圍影響，A1.2、A1.5 條款暫未統計，未來，公司將持續推進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 公司業務不適用 A2.5、B6.1、B6.3 條款。

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

<sup>3</sup> 《上海證券交易所上市公司自律監管指引第 1 號——規範運作》簡稱《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”

目錄 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
客戶責任   科技賦能，讓品質精益 Responsibility for Customers: Improving Quality with Science and Technology Empowerment	技術創新 Innovation in Science and Technology	B6、B6.3	8.2、8.6	V1.2、V2.1、V2.2、V2.3、V2.4
	品質工程 High-Quality Projects	B6、B6.2、B6.4、B6.5	8.2、8.15	S4.1
	優質服務 High-Quality Services	B6、B6.2、B6.5	8.1、8.2	S4.5、S4.6、S4.7、S4.8
環境責任   綠色低碳，讓家園永續 Environmental Responsibility: Building a Better Community with Green and Low-Carbon Initiatives	響應雙碳 Response to Carbon Peaking and Carbon Neutrality Goals	A2、A2.3、A4、A4.1	8.8、8.9	E2.4、E5.1
	環境管理 Environmental Management	A1	8.1、8.6、8.8、8.11、8.12	E1.1、E1.3、E1.4、E1.9
	綠色運營 Green Operations	A2、A2.1、A2.4	8.8、8.98.3、8.8、8.9、8.10、8.13	E1.8、E2.1、E2.2、E2.4、E2.5、E2.9、E2.12、E3.1、E3.2、E3.3、E3.5
	低碳文化 Low-Carbon Culture	A3、A3.1	8.8、8.9	E1.7、E2.14、E4.2、E4.3
員工責任   助力成長，讓人才湧流 Responsibility for Employees: Facilitating Career Development and Unleashing Creativity of Talented People	權益保障 Rights and Interests Protection	B1、B1.1、B1.2、B4、B4.1、B4.2	8.1、8.3、8.7、8.14、8.15	S1.1、S1.2、S1.3、S1.5、S1.6、S1.7
	員工發展 Employee Development	B3、B3.1、B3.2	8.1、8.3、8.7、8.14	S2.1、S2.2
	健康與安全 Health and Safety	B2、B2.3	8.3、8.6、8.7、8.13、8.14	S3.1、S3.3、S3.4、S3.5、S3.6、S3.7、S3.8
	員工關懷 Employee Care	B8、B8.1、B8.2	8.1、8.7、8.14、8.15	S1.10、S1.11
夥伴責任   同行共進，讓力量匯聚 Responsibility for Partners: Gathering Strength to Achieve Win-Win Results	責任供應鏈 Responsible Supply Chain	B5、B5.1、B5.2、B5.3、B5.4	8.1、8.2、8.3、8.6、8.8	S5.1、S5.2、S5.6、V2.5、V2.6
	戰略合作 Strategic Cooperation	-	8.2	V2.8
	行業共建 Joint Efforts for Industry Development	-	8.3、8.8、8.13	V2.8
公共責任   大愛無疆，讓溫暖傳遞 Responsibility for the Community: Contributing to Society with Great Love	鄉村振興 Rural Revitalization	B8、B8.1、B8.2	8.1、8.4	V1.1、V1.2、V1.3、V1.4、V3.1、V3.3
	志願服務 Volunteer Services	B8、B8.1、B8.2	8.1、8.3、8.4、8.6、8.15	V3.4、3.7
	海外履責 Overseas Responsibility Fulfilment	B8、B8.1、B8.2	-	V1.1、V1.2、V1.3
未來展望 Future Prospect	-	-	-	A1
附錄 Appendix	關鍵績效 Key Performance Indicators	A1.1、A1.3、A1.4、A2.1、A2.2、B2.1、B2.2、B3.1、B3.2	8.1、8.2、8.4、8.5、8.8、8.9、8.15	A2
	指標索引 Index Guide	-	-	A4
	釋義 Terms and Abbreviations	-	-	-
	報告評級 Rating Report	-	-	A3
	意見反饋 Suggestions and Feedback	-	-	A5

# 釋義

## Terms and Abbreviations

全稱 Full name	簡稱 Abbreviated name
中國鋁業集團有限公司 Aluminum Corporation of China	集團 CHINALCO
瀋陽鋁鎂設計研究院有限公司 Shenyang Aluminum & Magnesium Engineering and Research Institute Company Limited	瀋陽院 SAMI
貴陽鋁鎂設計研究院有限公司 Guiyang Aluminum & Magnesium Engineering and Research Institute Company Limited	貴陽院 GAMI
長沙有色冶金設計研究院有限公司 CINF Engineering Corporation Limited	長沙院 CINF
中色科技股份有限公司 China Nonferrous Metals Processing Technology Co., Ltd.	中色科技 CNPT
中國有色金屬長沙勘察設計研究院有限公司 China Nonferrous Metal Changsha Survey and Design Institute Co., Ltd.	長勘院 China Nonferrous Metal Changsha Survey and Design Institute
中國有色金屬工業昆明勘察設計研究院有限公司 Kunming Prospecting Design Institute of China Nonferrous Metals Industry Co., Ltd.	昆勘院 Kunming Prospecting Design Institute
昆明有色冶金設計研究院股份公司 Kunming Nonferrous Metallurgy Design and Research Institute Co., Ltd.	昆明院 Kunming Nonferrous Metallurgy Design and Research Institute
中國有色金屬工業第六冶金建設有限公司 China Nonferrous Metal Industrial No. 6 Metallurgy Construction Company	六冶 China Nonferrous Metal Industrial No. 6 Metallurgy Construction
九冶建設有限公司 Jiuye Construction Co., Ltd.	九冶 Jiuye Construction
中色十二冶金建設有限公司 China Nonferrous Metal Industrial No. 12 Metallurgy Construction Company	十二冶 China Nonferrous Metal Industrial No. 12 Metallurgy Construction
中鋁山東工程技術有限公司 China Aluminum Shandong Engineering Technology Co., Ltd.	山東工程 Shandong Engineering
中鋁國際（天津）建設有限公司 CHALIECO (Tianjin) Construction Co., Ltd.	天津建設 Tianjin Construction

# 報告評級

## 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

### 《中鋁國際工程股份有限公司 2022 環境、社會及管治報告》評級報告

受中鋁國際工程股份有限公司委託，“中國企業社會責任報告評級專家委員會”抽選專家組成評級小組，對《中鋁國際工程股份有限公司 2022 環境、社會及管治報告》（以下簡稱《報告》）進行評級。

#### 一、評級依據

中國社會科學院《中國企業社會責任報告指南（CASS-CSR 4.0）之工程與建築業》暨“中國企業社會責任報告評級專家委員會”《中國企業社會責任報告評級標準（2020）》。

#### 二、評級過程

1. 評級小組審核確認《報告》編寫組提交的《企業社會責任報告過程性資料確認書》及相關證明材料；
2. 評級小組對《報告》編寫過程及內容進行評價，擬定評級報告；
3. 評級專家委員會副主席、評級小組組長、評級小組專家共同簽署評級報告。

#### 三、評級結論

##### 過程性 (★★★★☆)

公司成立社會責任工作領導小組，黨委書記、董事長擔任組長，總裁擔任常務副組長，領導班子其他成員以及有關人員擔任副組長，統籌規劃公司社會責任工作的實施，領導小組下設辦公室，負責社會責任的日常工作；將報告定位為合規披露履責信息、完善社會責任管理、強化利益相關方溝通、提升品牌形象的重要工具，功能價值定位明確；結合國際國內社會責任標準、行業對標分析、利益相關方調查等識別實質性議題；修訂《中鋁國際工程股份有限公司社會責任管理模塊及負面清單》《中鋁國際工程股份有限公司社會責任工作實施細則》，完善社會責任工作頂層設計；計畫通過中鋁集團社會責任報告集中發佈活動發佈報告，並將以電子版、印刷品的形式呈現報告，過程性表現領先。

##### 實質性 (★★★★☆)

《報告》披露了項目質量管理、產品創新、承包商管理制度與措施、安全生產、建築垃圾管理等所在行業關鍵性議題，敘述詳細充分，實質性表現領先。

##### 完整性 (★★★★)

《報告》主體內容從“經濟責任”“客戶責任”“環境責任”“員工責任”“夥伴責任”“公共責任”等角度系統披露了所在行業核心指標的 78.91%，具有優秀的完整性表現。

##### 平衡性 (★★★★)

《報告》披露了“輕傷/重傷人數”“安全生產事故數”“員工流失率”“因工傷損失工作日數”“突發環境事件”等負面數據信息，具有優秀的平衡性表現。

##### 可比性 (★★★★)

《報告》披露了“總資產”“納稅總額”“員工人數”“慈善捐助總額”“環保總投入”“萬元產值能耗”等 76 個關鍵指標連續 3 年的對比數據，

並通過“位居 2022 北京上市公司 100 強第 81 位”等進行橫向比較，可比性表現卓越。

##### 可讀性 (★★★★★)

《報告》採用議題型框架結構，從六大篇章系統展示企業對政府、客戶、環境、員工、夥伴、社區等利益相關方的履責行動與成效，詳細回應利益相關方的期望與訴求；封面及章節頁選用多幀亮點項目實景大圖，凸顯行業特色，增強了報告的辨識度與感染力；設置“中鋁國際責任數字”版塊，集中呈現年度亮點績效；引入利益相關方證言佐證履責成效，可讀性表現卓越。

##### 創新性 (★★★★☆)

《報告》開篇設置“責任專題：聚焦‘從 0 到 1’，培育核心技術”，突出企業重點科技創新成果，彰顯了中央企業的責任擔當；積極響應聯合國可持續發展目標（SDGs），展示具體目標下的責任行動，凸顯了企業的價值追求；首次參與第三方報告評級，增強了信息披露的規範性，推動提升報告管理水準，具有領先的創新性表現。

##### 綜合評級 (★★★★☆)

經評級小組評價，《中鋁國際工程股份有限公司 2022 環境、社會及管治報告》為四星半級，是一份領先的 ESG 報告。

#### 四、改進建議

1. 增加行業核心指標的披露，提高報告的完整性；
2. 增強報告內容和設計的表現形式，進一步提升報告的創新性。

評級專家委員會副主席

評級小組組長

評級小組專家



出具時間：2023 年 3 月 6 日

掃碼查看企業評級檔案



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 an 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

## 意見反饋

### Suggestions and Feedback

親愛的讀者：

您好！

非常感謝您閱讀本報告，為進一步瞭解您對中鋁國際 ESG 管理與信息披露工作的期望和需求，我們誠摯地邀請您參與調查，您的觀點和見解對我們至關重要。我們由衷感謝您的寶貴意見和建議！

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. 您對本報告的總體評價如何：

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. 您認為本報告是否能反映公司對經濟、社會和環境的重大影響：

是  否

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

Yes  No

3. 您認為本報告所披露信息、數據、指標的清晰、準確、完整度如何：

較高  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. 您認為本報告的結構安排如何：

較合理  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. 您認為本報告版式安排、表現形式設計是否易讀：

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. 您認為本報告哪些方面最讓您滿意？

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

7. 您對中鋁國際 ESG 工作有哪些意見和建議？

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

8. 您認為本報告還需要披露哪些您希望進一步瞭解的信息？

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

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