

2020 | 中 鋁 國 際

社 會 責 任 報 告

CORPORATE SOCIAL RESPONSIBILITY REPORT

用心營造美好未來

To Create a Better Future with Heart



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

2020





報告導讀

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。

○ 報告標準

本報告遵循香港聯合交易所（以下簡稱“香港聯交所”）《環境、社會及管治報告指引》，上海證券交易所《上海證券交易所上市公司環境信息披露指引》的有關規定與要求，並廣泛參考全球報告倡議組織 (GRI) 《可持續發展報告指南》、中國社會科學院《中國企業社會責任報告編寫指南（CASS — CSR4.0）》等在內的國內外社會責任報告標準。

○ 報告覆蓋範圍

如無特殊說明，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。

○ 報告資料來源

除特殊說明，本報告所引用的信息與資料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。

○ 報告時間範圍

2020 年 1 月 1 日至 2020 年 12 月 31 日。部分內容適當追溯歷史資料。

○ 報告稱謂說明

為便於表述和方便閱讀，“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”。

報告週期

- 本報告為年度報告。

報告獲取

- 可以在中鋁國際官方網站、香港聯交所網站或上海證券交易所網站流覽或下載本報告的中文簡體 / 英文、中文繁體 / 英文版本。

REPORT INTRODUCTION

To respond to the requirement of stakeholders, this report will demonstrate the company's concepts, management activities, events and achievement in environmental and social governance and sustainable development.

○ Report Standard

Besides complying with the relevant regulations and requirements of the "Environmental, Social and Governance Reporting. Guide (the ESG Guide)" of the Hong Kong Stock Exchange (hereinafter referred to as the "HKSE") and the Shanghai Stock Exchange's "Guidelines for Environmental Information Disclosure of Listed Companies in Shanghai Stock Exchange", the report also extensively refers to the "Sustainability Reporting Guidelines" of Global Reporting Initiative (GRI), the Chinese Academy of Social Sciences "China Corporate Social Responsibility Reporting Guide Framework (CASS-CSR4.0)" and other domestic and foreign social responsibility reporting standards.

○ Report Scope

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

○ Data Source

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 environmental and social governance information that has been collected, aggregated and audited by the company.

○ Time Range

From January 1, 2020 to December 31, 2020. Part of the content might appropriately trace historical data.

○ Terms and Description

For ease of readability, "CHALIECO" "the Company" "we" refer to the headquarters, branches and subsidiaries of China Aluminum International Engineering Corporation Limited. Unless otherwise specified, "yuan" in terms of currency represents "RMB yuan".

○ Reporting Period

This report is an annual report.

○ Report Access

Our publications in Chinese simplified/English, traditional Chinese/English are available to view and download on the websites of official website of CHALIECO, the websites of the HKSE or Shanghai Stock Exchange.



目錄 Contents

報告導讀	02
Report Introduction	
董事長致辭	06
Message from the Chairman	
關於我們	10
About Us	
公司簡介 Company Profile	12
組織架構 Organization Structure	14
企業治理 Corporate Management	17
社會責任管理	22
Social Responsibility Management	
管理體系 Management System	24
利益相關方參與 Stakeholder Participating	25
董事會參與 BOD Leading	26
重大議題判定 Decision-making Process for Major Issues	26
未來展望	76
Future Outlook	
附錄	78
Appendix	
ESG 指標索引 ESG Index	78

28	匠心之“鋁” 引領行業	
	"Aluminum" with Ingenuity to Lead the Industry	
30	優質工程 High-quality Project	
33	技術創新 Technological Innovation	
41	安全生產 Work Safety	
44	責任產業鏈 Responsibility Industry Chain	

01

	綠色之“鋁” 律動未來	46
	"Aluminum" with Green to Rhythm Future	
	應對氣候變化 Tackling Climate Change	48
	降低環境影響 Reduce Environmental Impact	50
	推行環保技術 Promote Environmental Protection Technology	54
	鋁應用推廣 Aluminum Application Promotion	56

58	幸福之“鋁” 共用美好	
	"Aluminum" with Happiness to Share Prosperity	
60	員工關愛 Employee Care	
65	志願服務 Volunteer Service	
66	精準扶貧 Targeted Poverty Alleviation	
70	防疫抗疫 Fight against COVID-19	
73	境外履責 Performing duties abroad	

03

董事長致辭



王健強

中鋁國際工程股份有限公司董事長

2020年，是極不平凡的一年。面對新冠疫情的嚴重衝擊、嚴峻復雜的國內外經濟形勢，中鋁國際上下齊心協力、攻堅克難，積極有序落實疫情防控、狠抓復工復產、深化改革調整，推動企業高質量發展走深、走實，取得新成績。

我們秉持匠心鑄就至臻品質，致力打造優質工程。質量之魂，存於匠心。中鋁國際以質量安全為支撐，開展項目管理化標準體系建設，健全工程項目質量管理體系，不斷創新優化施工工法，持續強化項目監督與管理，以工匠精神鑄造優質工程、精品工程。2020年，中鋁國際 CEC·咸陽第 8.6 代薄膜電晶體液晶顯示器器件項目榮獲國家級優質工程金獎；內蒙古蒙泰 90 萬噸 / 年鋁板帶項目、車用鋰電正極材料產業化及環保技改項目榮獲國家優質工程獎。

我們深入實施創新驅動發展，激發科技創新活力。中鋁國際堅持創新驅動，加大科研資金投入，積極開展科研與技術攻關，加快創新技術成果轉化應用，推動有色金屬產業清潔、低碳、高效、可持續發展。2020年，中鋁國際創新開發的智能鋁電解多功能機組核心裝置項目實現了電解鋁生產換極全過程智能化，並通過了工信部組織的測評驗收；“七點進電超大型鋁電解槽精準調節深度節能成套技術”在多家國內企業取得成功應用。

我們堅持生態優先綠色發展，守護一方綠水青山。中鋁國際持續深化生態文明建設，加快環保技術研發與推廣應用，培育綠色發展新動能。2020年，成功研發“濕法冶煉工藝”“鉛陽極泥處理新技術”“RDP 全過程一體化精準協同膏體充填技術”等節能環保技術，提高資源利用率，減少“三廢”排放，降低能源消耗。同時，中鋁國際積極拓展綠色技術研發、綠色勘查施工、綠色運行管理、綠色項目開發等領域，推動落實綠色方案，為美麗中國建設貢獻力量。

我們緊抓“一帶一路”發展機遇，加速海外業務佈局。中鋁國際憑藉“技術為先導”的集約發展模式，為多項海外工程提供工程設計與諮詢、工程總承包、設備供貨等服務，推動中國鋁工業技術、裝備及管理“走出去”，並與國際企業、科研機構等加強合作，實現互利互惠、合作共贏。2020年，中鋁國際成功簽訂印尼、印度、剛果（金）等一批海外項目，並打造以印尼和越南為基礎的東南亞基地、以幾內亞和剛果金為基礎的非洲基地、以哈薩克和塔吉克斯坦為基礎的俄語區基地、以委內瑞拉和秘魯為基礎的美洲基地，以及以義大利維斯梅港電解鋁廠 EPS 總包項目為基礎的歐洲市場業務基地，實現海外市場跨越式發展。

我們聚善公益傾情回報社會，持續增進民生福祉。中鋁國際積極履行社會責任，深入落實精準扶貧任務，在基礎設施建設、產業支持、教育、消費、就業等領域，助力貧困村脫貧摘帽。在疫情大考面前，中鋁國際積極復工復產，踴躍捐款捐物，助力打贏疫情防控阻擊戰。與此同時，中鋁國際熱心公益事業，鼓勵並支持員工積極參與志願者活動，凝聚向善力量，為和諧社會建設注入新的生機與活力。

勇毅篤行催奮進，蹄疾步穩踏新程。中鋁國際將一如既往地秉持“用心營造美好未來”的企業使命，凝心聚力、闊步前行，以更負責任的態度踐行可持續發展，服務社會、回報股東、回饋社會、造福員工，以更寬廣的視野、更高的目標要求、更有力的舉措，向著高質量發展闊步前行。

Message from the Chairman



The year 2020 has witnessed many remarkable events. Facing the Covid-19 pandemic and going against the economic headwinds home and abroad, CHALIECO has made concerted efforts of all the levels to overcome difficulties, actively and orderly implement epidemic prevention and control, vigorously resume work and production, deepen reforms and adjustments, and promote high-quality development of the company to achieve new results.

We uphold the craftsmanship to create high-quality projects. The quality lies at the heart of craftsmanship. Committed to the pursuit of quality and safety, CHALIECO has carried out standardized project management, improved project quality system, continuously innovated and optimized construction methods, continuing to strengthen project supervision and cast high-quality projects with the spirit of craftsmanship. In 2020, the 8.6th Generation Thin Film Transistor Liquid Crystal Display Device Project in Xianyang won the National Quality Engineering Gold Award. Montadalat aluminum plate and strip project in Inner Mongolia with output of 900,000-ton/year and industrialization of lithium battery cathode materials for vehicles and its green technology transformation projects won the National Quality Engineering Award.

We deeply implement innovation-driven development to stimulate the vitality of technological innovation. Adhering to innovation-driven policies, CHALIECO increases investment in scientific research, actively carrying out R&D and accelerating the transformation and application of innovative technological achievements to promote the low-carbon and sustainable development of the non-ferrous metal industry. In 2020, CHALIECO innovated to develop the core device of the aluminum electrolysis multifunctional

unit innovatively developed by CHALIECO realized the upgrade of the whole process of production and changeover, and passed the evaluation and acceptance organized by the Ministry of Industry and Information Technology. "Precise depth adjustment and energy-saving set of technology for ultra-large aluminum electrolytic cell with 7-power supply" has been successfully applied in many domestic enterprises.

We always put ecology first and insist on green development. CHALIECO continues to deepen the construction of ecological civilization, accelerate R&D and application of green technologies, and cultivate new momentums of green development. In 2020, we have successfully developed energy-saving and environment-friendly technologies such as "hydrometallurgy process", "new technology for lead anode slime treatment", "RDP full-process integration, precise and collaborative paste filling technology" to improve resource utilization, and reduce emissions and energy consumption. Besides, CHALIECO actively insists on green technology, green survey & construction, green operation and green project development to contribute to the construction of a beautiful China.

We seize the opportunities brought by the Belt and Road Initiative to accelerate our overseas business deployment. Relying on the "technology-led" intensive development model, CHALIECO provides various services including engineering design and consulting, engineering project contracting, and equipment supply for a number of overseas projects, promoting China's aluminum industry to export its technology, equipment, and management experience. We also strengthen partnerships with international enterprises, scientific research institutions, and other organizations to achieve mutual benefits and seek win-win cooperation. In 2020, CHALIECO successfully signed a number of overseas projects in Indonesia, India, and the Democratic Republic of Congo, and built the Southeast Asian bases in Indonesia and Vietnam, African bases in Guinea and the Democratic Republic of Congo, the Russian-speaking bases in Kazakhstan and Tajikistan, the American bases in Venezuela and Peru, and the European market bases with the EPS turnkey project of the electrolytic aluminum plant in Italy at its core.

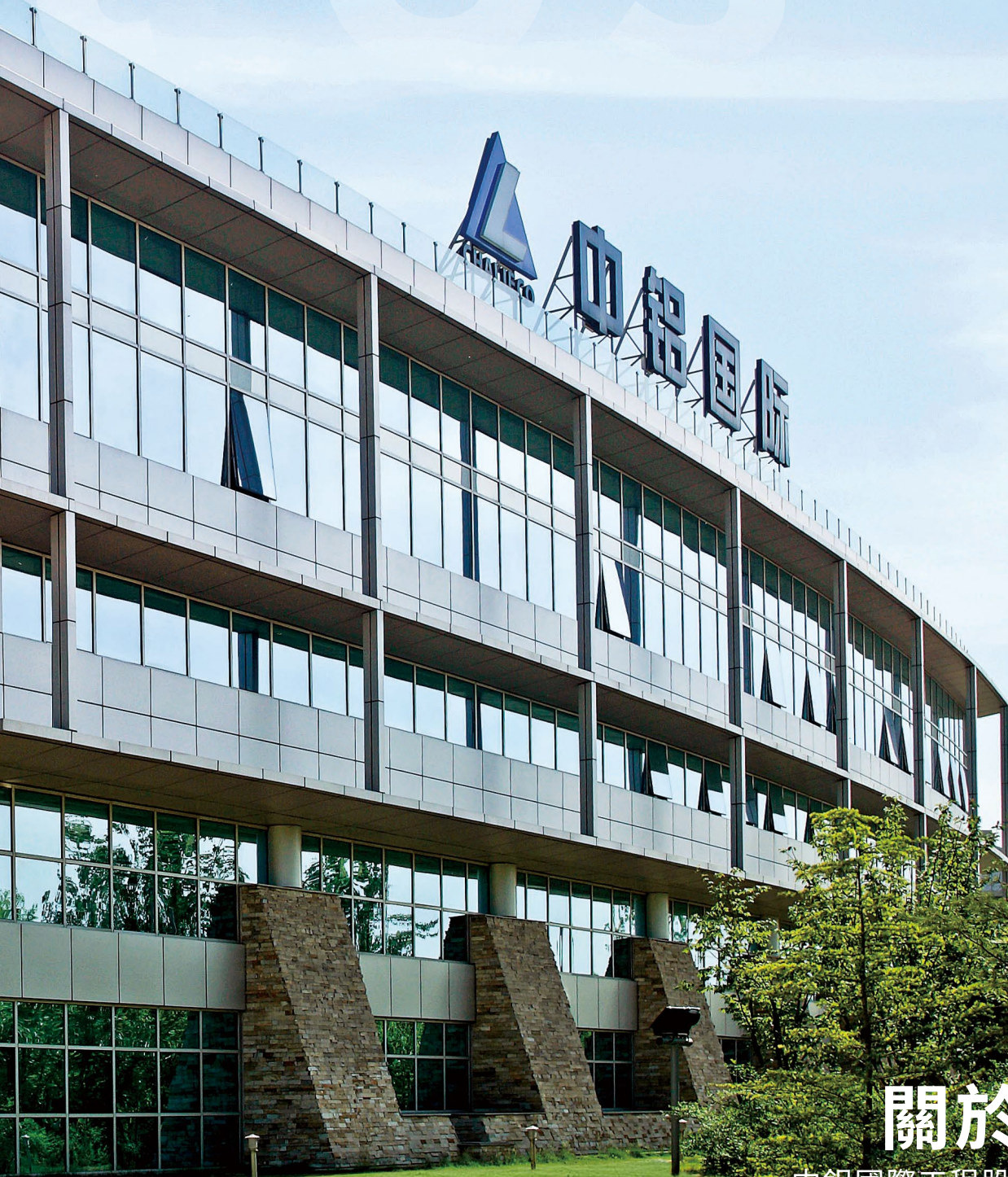
We pool little kindness into great strength of charity to give back to the society, and constantly improve public good and people's well-being. CHALIECO actively fulfills its social responsibilities and implements targeted poverty alleviation tasks in depth. In the areas of infrastructure construction, industry support, education, consumption, employment, etc., the company adopts various methods for, such as, targeted assistance, infrastructure construction, charitable donations, agricultural products purchase, to help poor villages get rid of poverty. In the face of the pandemic, CHALIECO actively resumed work, and donated money and materials to help win the battle against the virus. At the same time, CHALIECO is also keen to public welfare, encouraging employees to actively participate in volunteer activities, and the construction of a harmonious society.

We are courageously and eagerly embarking on a new journey. CHALIECO will, as always, uphold the corporate mission of "to create a better future with heart". With sustainable operation, we will better serve the clients, reward shareholders, return to the society and benefit employees, and stride towards high-quality development with a broader vision and a higher requirements and greater executions as well.

ALOU



ALUS



關於我們

中鋁國際工程股份有限公司

公司簡介 Company Profile

中鋁國際工程股份有限公司成立於 2003 年 12 月，是中國鋁業集團有限公司（以下簡稱“中鋁集團”）的工程技術板塊，屬於中鋁集團控股子公司，是中國有色金屬行業領先的技術、工程服務與設備提供商。公司於 2012 年 7 月 6 日在香港聯交所主機板（H 股代碼：2068）上市，於 2018 年 8 月 31 日在上海證券交易所（A 股代碼：601068）上市，成為“A+H”有色工程技術第一股。

中鋁國際是一家集技術研發、測繪勘察、工程設計、工程施工、工程總承包等業務為一體的高新技術企業。中鋁國際所屬 6 家國家級甲級設計研究院、5 家大型綜合建築安裝公司。中鋁國際成立十多年來，創造了百余項“中國第一”和中國企業新紀錄，取得中國建築工程魯班獎、國家優質工程獎等各級各類工程獎項 500 余項。近年來，中鋁國際重點開展節能減排技術研發、積極參加地方基礎設施建設、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作出貢獻。

Established in December 2003, China Aluminum International Engineering Corporation Limited (hereinafter referred to as "CHALIECO") is an engineering technology company and a holding subsidiary of Aluminum Corporation of China (hereinafter referred to as CHINALCO), also a leading technology and engineering services provider in nonferrous metals industry in China. The company was listed on the main board of the Hong Kong Stock Exchange (SEHK: 2068) on July 6, 2012 and the Shanghai Stock Exchange (SHA: 601068) on August 31, 2018, becoming the first non-ferrous engineering company listed on both Hong Kong and Shanghai markets.

CHALIECO is a high-tech enterprise integrating research and development, surveying, engineering design, engineering construction and engineering project contracting. CHALIECO has 6 national-level Class A design and research institutes and 5 large-scale integrated construction and installation companies. In the more than ten years since its establishment, CHALIECO has created more than 100 "China's No. 1" and many new records for Chinese enterprises, and has won more than 500 various engineering awards at all levels, including Luban Award and the National Quality Engineering Award. In recent years, CHALIECO has focused on research and development of energy-saving and emission-reduction technologies, and actively participated in the investment, construction and development of local infrastructure construction, shantytown renovation, ecological construction, environmental engineering, urban public utilities, etc., in order to make positive contributions to an environmentally friendly society.

<p>發展使命 Mission</p> <p>用心營造美好未來 To Create A Better Future with Heart</p>	<p>願景 Vision</p> <p>具有國際競爭力的世界一流有色金屬工程技術公司 To Build A Leading Non-Ferrous Metal Engineering Technology Company with International Competitiveness</p>
---	--

定位 Positioning

引領和支持鋁產業的科技進步，引領和開拓鋁產品的工程應用，引領和帶動鋁銅國際產能的合作；做“一帶一路”建設的積極參與者、有色行業海外工程建設和產能合作的有力推動者以及打造海外中鋁的主要奉獻者

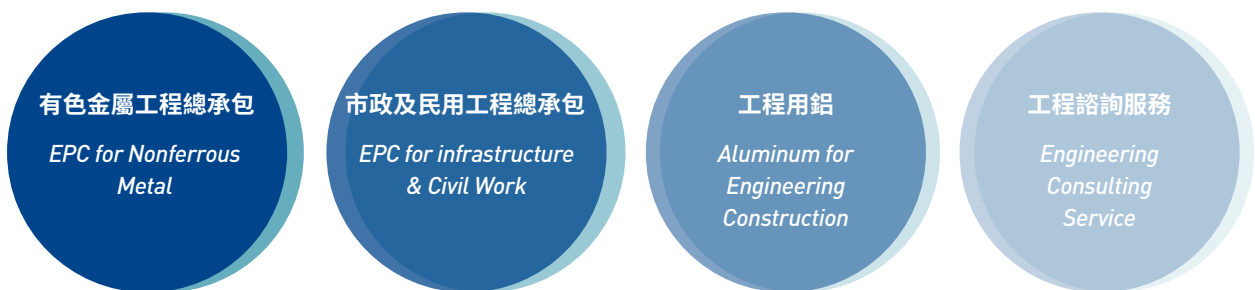
A company to lead and support the technological progress, engineering application, and international cooperation of aluminum industry; to be an active participant in the Belt and Road Initiative, effectively promoting overseas project construction in the non-ferrous industry, and a major contributor to Chinalco international progress.

發展戰略 Development Strategy

以高質量發展為引領，技術為龍頭，工程施工為基礎，為有色行業提供產業鏈的服務；以創新為驅動，在確保有色行業技術優勢的同時，充分利用智能製造、智能建造技術、服務有色行業並逐步向非有色業務拓展；以市場為導向，鞏固並聚焦傳統有色行業的市場領先優勢，提升公司在新興業務的效益和規模；以綠色發展為基調，大力推進工程用鋁，積極拓展節能和生態產業，尋找新的利潤增長點；以資本運作為紐帶，密切與地方政府的關係，積極參與國家和地方的城市基礎設施建設；緊跟“一帶一路”國家戰略，深耕海外市場，提升公司國際競爭力和品牌影響力

Led by high-quality development and technologies, and based on engineering construction, the Company provides full industrial-chain service for the nonferrous metal industry; driven by innovation, the Company will make full use of the technologies of intelligent manufacturing and intelligent construction, serves the nonferrous metal industry and gradually expand the ferrous metal business, while ensuring its technological advantages in the nonferrous metal industry; being market-oriented, the Company will consolidate and focus on its market-leading edge in the traditional nonferrous metal industry while improving the profit and scale of emerging business and overseas business; taking green development as the keynote, the Company will vigorously promote the aluminum application in engineering, actively expands energy-saving and ecological industries for new drivers of profit growth; taking capital operation as the link, the Company will form closer relations with local governments, and actively participate in the national and local urban infrastructure construction; the Company will stick to the Belt and Road Initiative, go further in overseas market exploration, and promote its international competitiveness and brand awareness.

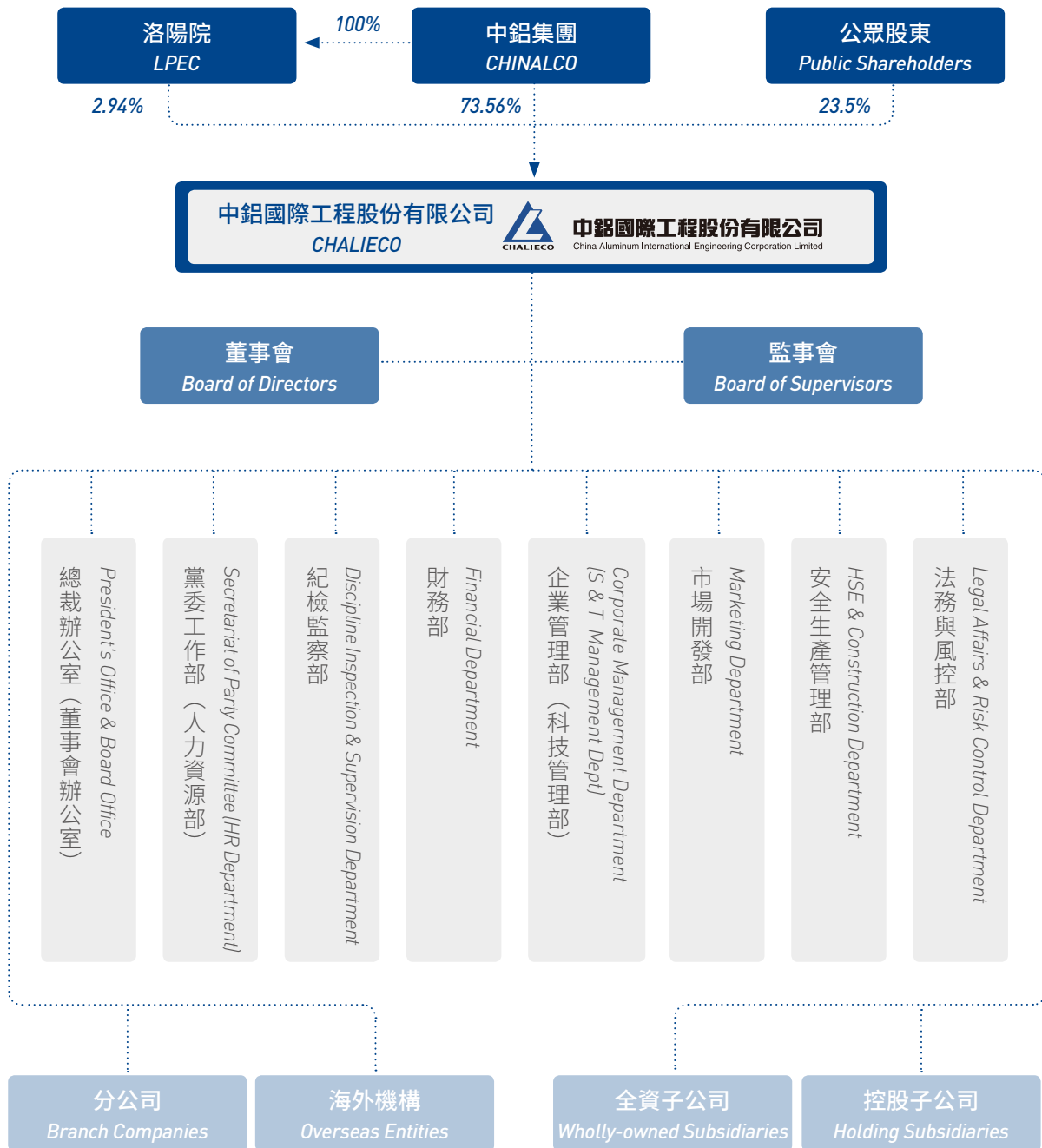
“4+1” 業務發展方向 "4+1" Business Directions



海外業務 Overseas Business

組織架構 Organization Structure

組織架構圖
Organization Diagram

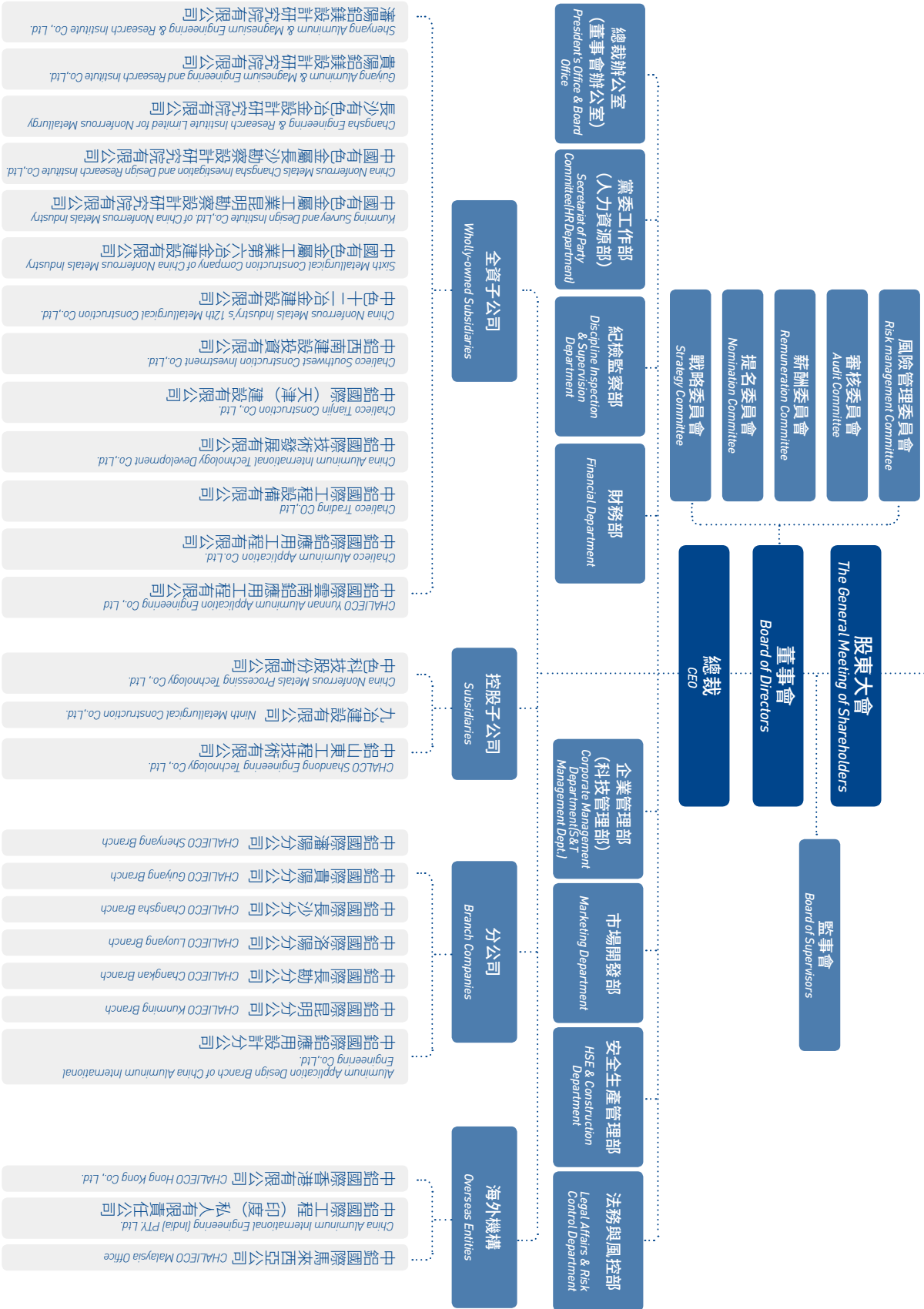


業務佈局 Business Layout

截至報告期末，中鋁國際重要分子公司、海外及港澳臺機構如下：

As of the end of the reporting period, the major subsidiaries and institutions overseas or in Hong Kong, Macao and Taiwan are as follows:

全資子公司 Wholly-owned subsidiary	瀋陽鋁鎂設計研究院有限公司 (Sami) Shenyang Aluminum & Magnesium Engineering and Research Institute Co., Ltd.	中鋁西南建設投資有限公司 Chalieco Southwest Construction Investment Co.,Ltd.
	貴陽鋁鎂設計研究院有限公司 (Gami) Guiyang Aluminum & Magnesium Engineering and Research Institute Co., Ltd.	中鋁國際 (天津) 建設有限公司 Chalieco Tianjin Construction Co., Ltd.
	長沙有色冶金設計研究院有限公司 (Cinf) Changsha Engineering & Research Institute Limited for Nonferrous Metallurgy	中鋁國際技術發展有限公司 China Aluminum International Technology Development Co.,Ltd.
	中國有色金屬長沙勘察設計研究院有限公司 China Nonferrous Metals Changsha Investigation and Design Research Institute Co.,Ltd.	中鋁國際工程設備有限公司 China Aluminum Chalieco Trading CO.,Ltd
	中國有色金屬工業昆明勘察設計研究院有限公司 Kunming Survey and Design Institute Co.,Ltd. of China Nonferrous Metals Industry	中鋁國際鋁應用工程有限公司 Chalieco Aluminum Application Co.Ltd.
	中國有色金屬工業第六冶金建設有限公司 Sixth Metallurgical Construction Company of China Nonferrous Metals Industry	中鋁國際雲南鋁應用工程有限公司 Chalieco Yunnan Aluminum Application Engineering Co., Ltd
	中色十二冶金建設有限公司 China Nonferrous Metals Industry's 12th Metallurgical Construction Co.,Ltd.	
控股子 公司 Holding Subsidiaries	中色科技股份有限公司 (CNPT) China Nonferrous Metals Processing Technology Co., Ltd.	中鋁山東工程技術有限公司 Chalieco Shandong Engineering Technology Co., Ltd.
	九冶建設有限公司 Ninth Metallurgical Construction Co.,Ltd.	
分 公 司 Branch Companies	中鋁國際瀋陽分公司 CHALIECO Shenyang Branch	中鋁國際長勘分公司 CHALIECO Changkan Branch
	中鋁國際貴陽分公司 CHALIECO Guiyang Branch	中鋁國際昆明分公司 CHALIECO Kunming Branch
	中鋁國際長沙分公司 CHALIECO Changsha Branch	中鋁國際鋁應用設計分公司 Aluminum Application Design Branch of China Aluminum International Engineering Co.,Ltd.
	中鋁國際洛陽分公司 CHALIECO Luoyang Branch	
海外及港澳臺機構 Overseas Entities	中鋁國際香港有限公司 CHALIECO Hong Kong Co., Ltd.	中鋁國際馬來西亞公司 CHALIECO Malaysia SDN.BHD
	中鋁國際工程 (印度) 私人有限責任公司 China Aluminum International Engineering (India) PTY. Ltd.	



企業治理 Corporate Management

中鋁國際恪守合規原則，嚴格遵守《中華人民共和國公司法》《中華人民共和國證券法》《上市公司治理準則》等相關法律法規，建立“三會一層”公司治理架構，明確職責，建立合規章程，制定議事規則和程序，確保公司規範運營、決策科學。2020年，公司共召開董事會7次，董事會審核委員會5次，薪酬委員會1次，風險管理委員會2次，戰略委員會1次；監事會5次，股東大會1次。

CHALIECO abides by the principle of compliance, strictly abides by the "Company Law of the People's Republic of China", "Securities Law of the People's Republic of China", "Listed Company Governance Guidelines" and other relevant laws and regulations. We have also established a governance structure known as "three meeting and one management team" (general meeting of shareholders, board of directors, board of supervisors, and senior management team) to clearly formulate rules of procedure and to ensure the company's standardized operations and scientific decision-making. In 2020, the company held a total of 7 board meetings, 5 audit meetings, 1 meetings for remuneration, 2 risk management meetings, and 1 meetings for strategic development; 5 for the board of supervisors and 1 for the general meeting of shareholders.

依法合規 Compliance with Laws and Regulations

中鋁國際在企業治理和經營管理各環節中，始終貫徹依法治企、合規管控。把依法治企、合規治理工作職責落實到各部門，通過法務與審計、合規、風控、內控緊密結合，市場開發、工程管理、財務多條線合力，發揮審計、紀檢、巡視等監督手段，確保依法合規。

In all aspects of corporate governance and business management, CHALIECO has always implemented corporate governance and compliance management and control in accordance with the law. We implement the responsibilities of governing to all departments. Through the close integration of legal affairs and auditing, compliance, risk control, and internal control, the joint efforts of market development, project management, and finance are combined to give full play to the supervision of auditing, disciplinary inspection to ensure compliance with laws and regulations.

風險管理 Risk Management

中鋁國際高度重視可持續發展過程中面臨的風險，建立風險管理及內部監控系統。制定《全面風險管理實施細則》《全面風險管理監控與報告實施細則》《全面風險管理體系測評辦法》《風險評估管理辦法》等制度，為風險管控提供制度保障。

中鋁國際各層級建立上下貫通的全面風險管理三道防線，對由於經濟環境、政策環境、外部監管、渠道變化、技術變化、競爭對手的行動等導致的安全風險、環境風險、現金流風險、國際化經營風險和員工疫情風險進行持續監控、記錄、分析、評估，及時確定應對風險策略。

CHALIECO attaches great importance to the risks faced in the process of sustainable development and has established risk management and internal control systems. We have formulated "Comprehensive Risk Management Implementation Rules", "Comprehensive Risk Monitoring and Reporting Implementation Rules", "Comprehensive Risk Management System Evaluation Measures", "Risk Assessment Management Measures" and other systems to provide institutional guarantees for risk management and control.

CHALIECO has established three-level practice for comprehensive risk management, to deal with the company's safety and environmental risks, cash flow risks, international business risks and labor epidemic risks due to economic environment, policy environment, external supervision, channel changes, technological changes, and competitors' actions. We are continuously monitoring, recording, analyzing and evaluating, responding to the risk in a timely manner.

中鋁國際風險管理三道防線 Three-level practice for risk management

1

各職能管理部門和業務單位

Functional management departments and business units

每月填寫《全面風險管理監控報表》，識別風險，制訂應對措施並實施。

Filling out the "Comprehensive Risk Management Monitoring Report" every month to identify risks, formulate countermeasures and implement them.

2

法務與風控部門

Legal Affairs and Risk Control Department

跟蹤措施落實，評價措施有效性，並按月編制《全面風險管理監控報告》，編制《全面風險管理年度報告》。

Following up the implementation of the measures, evaluating the effectiveness of the measures, and compiling the "Comprehensive Risk Management Monitoring Report" and the "Comprehensive Risk Management Annual Report" on a monthly basis

3

公司風險評估委員會

Corporate Risk Assessment Committee

審議重大決策的風險評估報告；監督、評估、檢查公司內部風險管理體系的完整性、運行效果，並向董事會提交報告。

To review the risk assessment report of major decisions; to supervise, evaluate and inspect the integrity and operational effects of the company's internal risk management system, and submit a report to the board of directors.

加強黨建 Party Building

中鋁國際深入學習貫徹習近平新時代中國特色社會主義思想和黨的十九大精神，貫徹全國國有企業黨建工作會議要求，全面落實從嚴治黨責任，夯實黨建基礎。2020年，公司以思想建設和政治建設作為重要抓手，從嚴推進黨建各項工作開展。

CHALIECO has thoroughly studied and implemented Xi Jinping's new era of socialism with Chinese characteristics and the spirit of the 19th National Congress of the Communist Party of China, implemented the requirement proposed by Party Building Work Conference, fully implemented the responsibility of strict party management, and consolidated the foundation for party building. In 2020, the company has taken ideological and political construction as an important starting point to strictly promote the development of party building.

強化理論武裝

To strengthen theoretical support

- 每月印發理論學習參考資料，及時學習習近平總書記關於疫情防控、復工復產等重要講話精神，公司黨委中心組集中學習 16 次，其中專題研討 8 次

The theoretical study materials are issued every month to understand the important speeches delivered by General Secretary Xi Jinping on epidemic prevention and control, resumption of work, etc. The central group of the company's party committee conducted 16 courses for material study, including 8 special seminars.

- 深入學習黨的十九屆四中、五中全會精神，700 餘名中層以上幹部依託幹部網路學院完成 38 門課 28 學時學習

In-depth study of the spirit of the Fourth and Fifth Plenary Sessions of the 19th Central Committee of the Communist Party of China, more than 700 middle-level and above cadres completed 38 courses and 28 hours of study relying on the Cadre Online Institute

提升黨務工作能力

To improve Party affairs work

- 在照金幹部學院舉辦 2020 年黨務紀檢幹部能力提升培訓班，14 個成員企業 64 名黨務紀檢幹部參加培訓

Cadre Academy for Zhaojin held a training course to improve the ability of party disciplinary inspection in 2020, and 64 cadres responsible for party disciplinary inspection from 14 member companies participated in the training

開展黨建專題活動

To carry out special party building activities

- 挖掘內部資源，組織“黨課開講啦”“中鋁國際大講堂”，提升黨員幹部政治素質

We have excavated internal resources, organized the "Party Lectures" and "CHALIECO Lecture Hall" to improve the political quality of party members and cadres

- 開展建黨 99 周年“七個一”活動

Carried out the "Seven Ones" activities for the 99th anniversary of the founding of CPC

開展黨建考核

To carry out party building assessment

- 完成對 5 家成員企業的黨建考核，及時回饋問題並督導整改

Completed the party building assessment of 5 member companies, promptly feedbacked problems and supervised rectification

- 接受國資委黨建考核組考核，並獲得考核組肯定

Accepted the assessment of the SASAC and was highly recognized by the assessment team

加強基層黨建

To strengthen grassroots party building

- 加強“三基”建設：開展“兩帶兩創”“黨員攻關”“支部建在項目上”工作，持續推進標準化黨支部創建和黨員“雙提升”，堅持基層黨建工作“一月一提示、一季一檢查”

Strengthened the construction of the "three bases" (rooted in the base layer, to lay the foundation, and practice basic skills): carried out the work of "two leads" (the Party leads the members to create values, and the party members lead the masses to innovate), "let party member tackle key problems" and "branch building on projects", continuing to promote the standardization party branches building and the "dual promotion" of party members, and adhering to the basic party building work "monthly reminder, quarterly inspection"

- 組織體系建設：中國有色金屬長沙勘察設計研究院有限公司（以下簡稱“長勘院”）、中國有色金屬工業第六冶金建設有限公司（以下簡稱“六冶”）、中鋁國際（天津）建設有限公司（以下簡稱“中鋁天津建設”）黨委完成換屆，推進中色科技股份有限公司（以下簡稱“中色科技”）“兩委”換屆和中鋁國際雲南鋁應用工程有限公司成立黨支部

Organizational system construction: China Nonferrous Metals Changsha Investigation and Design Research Institute Co., Ltd. (hereinafter referred to as Changkan Institute), Sixth Metallurgical Construction Company of China Nonferrous Metals Industry (hereinafter referred to as Sixth Metallurgical Company) CHALIECO Tianjin Construction Co., Ltd., completed their Party committees renewal; China Nonferrous Metals Processing Technology Co., Ltd. (hereinafter referred to as "LPEC") promoted the renewal of the "two committees"; CHALIECO Yunnan Aluminum Application Engineering Co., Ltd. established its party branch.



11 月 30 日，中鋁國際黨委組織召開中心組專題學習暨黨的十九屆五中全會專題輔導報告會，特邀中共中央黨校（國家行政學院）政法部教授、博士生導師、博士後合作導師範文作《黨的十九屆五中全會精神與全面建設社會主義現代化國家新征程》專題輔導。

On November 30, CHALIECO Party Committee organized a special theoretical study and a special counseling report meeting of the Fifth Plenary Session of the 19th Central Committee of the Party. We invited professors and experts from the Political and Law Department of the Party School of the Central Committee of the Communist Party of China (National School of Administration) to make special guidance on "The Spirit of the Fifth Plenary Session of the Nineteenth Central Committee of the Party and the New Journey of Building a Socialist Modern Country in an All-round Way".

反腐倡廉 Anti-corruption

中鋁國際嚴格遵守《中華人民共和國反不正當競爭法》《關於禁止商業賄賂行為的暫行規定》等相關法律法規，建立健全反腐敗體系，扎實推進黨風廉政建設、反腐倡廉工作，堅決反對商業腐敗行為，為持續健康發展提供有力保障。

CHALIECO strictly abides by the "Anti-Unfair Competition Law of the People's Republic of China" and "Interim Provisions on the Prohibition of Commercial Bribery" and other relevant laws and regulations, has established and improved an anti-corruption system, solidly promoted the culture construction and anti-corruption work, and firmly opposed commercial corruption to provide a strong guarantee for sustainable and healthy development.

相關制度及規定

Relevant Systems and Regulations

採購人員

For purchasing officers

專項制定《採購人員廉潔從業若干規定》，嚴格主體責任

Specially formulated "Procedures for Procurement Personnel's Probity in Practice" to clarify the officers' accountability

公司制定員工守則，規範員工日常行為，恪守商業道德

The company formulated employee codes to regulate the daily behavior of employees and business ethics

員工

For staff

管理層和黨員*For management team and Party members*

制定《領導人員廉潔從業實施辦法》，通過《黨風廉政建設責任制》明確黨風廉政責任，並接受黨內準則及相關處分條例約束

Formulated the "Implementation Measures for the Clean Practice of Leaders", and clarified the responsibilities of the Party's work through the "Party Style and Clean Government Building Responsibility System" to restrain the members by internal party guidelines and relevant sanctions regulations

防範措施**Precautions**

2020年，公司制定印發《黨風廉政建設和反腐敗工作實施意見》，對3家成員企業開展巡視巡察；公司總部內共簽訂《黨風廉政建設責任暨廉潔從業承諾書》45份，對99名黨員幹部提拔重用、評優評先、黨風廉政情況進行審核。報告年度內，公司發生貪污訴訟案件0件。

In 2020, the company formulated and issued the "Implementation Opinions on Party Conduct and Clean Government Building and Anti-Corruption Work", and conducted inspections on 3 member companies. A total of 45 copies of the "Party Conduct and Clean Government Building Responsibility Letters" were signed in the company headquarters, and 99 party members and cadres were inspected to review their promotion and awards. During the reporting year, the company had 0 corruption lawsuits.

舉報及審核**Corruption Report and Review**

中鋁國際建立暢通的信訪舉報渠道，制定處理程序，在嚴格保護舉報人隱私的前提下，組織開展舉報線索核查。公司強化問題線索處置，存量線索辦結率94%，新發線索處置率100%。

CHALIECO has established unobstructed channels for complaint letters and visits, formulated processing procedures, and organized the verification of reported clues on the premise of strictly protecting the information of the reporter. the company has strengthened the handling of problem clues, with a completion rate of 94% of stock complaints and 100% of new ones.

隊伍建設與廉潔教育**Team Building and Integrity Education**

2020年，中鋁國際完善紀檢隊伍建設，組織參加中鋁集團紀檢監察組專題學會5次；組織開展全體紀檢監察幹部業務培訓班等，提升紀檢隊伍能力。

全年組織召開2次黨風廉政建設警示教育大會，2,100多名黨員幹部參與；400多個黨組織學習觀看警示教育片；組織“反腐倡廉宣傳教育月”，開展全公司範圍廉潔宣傳教育。公司人均反貪污培訓5.5小時。

In 2020, CHALIECO has improved the construction of the discipline inspection team, organized to participate in the special association of discipline inspection and supervision group of CHINALCO for 5 times. The company also organized cadres of the whole sector to carry out business training courses, enhancing the ability of the discipline inspection team.

We have convened 2 party conduct education conferences throughout the year, with more than 2,100 party members and cadres participating. More than 400 party organizations watched relevant educational films. "Anti-Corruption and Promoting Integrity Publicity and Education Month" was organized to enhance company-wide integrity and education. The anti-corruption training has reached 5.5 hours per capita.



中鋁國際秉承“用心營造美好未來”的使命，將履行社會責任的理念融入企業發展戰略、融進企業決策運營，不斷提升企業治理能力，完善社會責任管理制度建設和體系建設，為實現“建設世界一流的有色金屬工程技術公司”企業願景提供保障。

Adhering to the mission of "to create a better future with heart", CHALIECO has integrated the concept of fulfilling social responsibility into corporate development strategies and corporate decision-making to continuously improve corporate governance capabilities and enhance social responsibility management system, providing strong support to the vision of "building a leading on-ferrous metal engineering technology company with international competitiveness".

社會責任管理

Social Responsibility Management

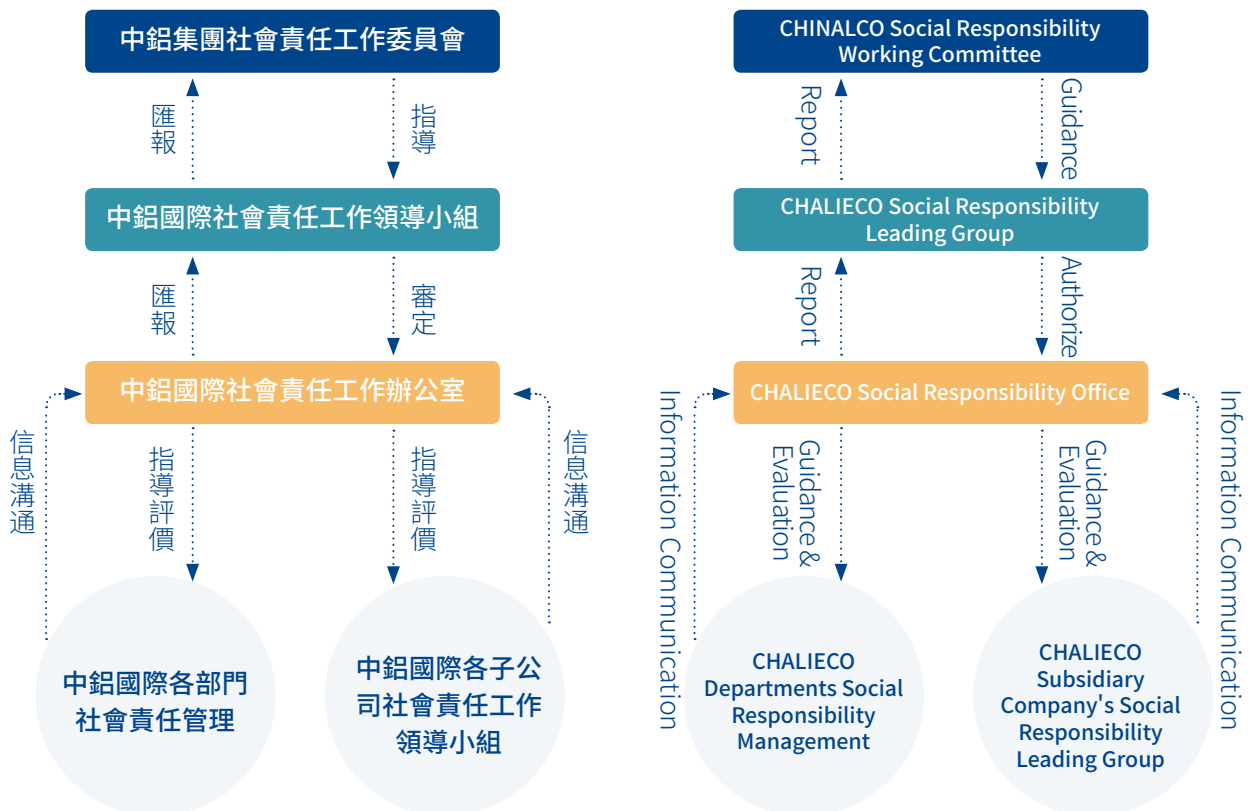


- 管理體系 Management System
- 利益相關方參與 Stakeholder Participating
- 董事會參與 BOD Leading
- 重大議題判定 Decision-making Process for Major Issues

管理體系 Management System

公司成立由公司黨委書記、董事長擔任組長，總裁擔任常務副組長，領導班子其他成員及有關人員擔任副組長的社會責任工作領導小組，各部門負責人為小組成員。該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，歸口職能部門為總裁辦公室（董事會辦公室），總裁辦公室（董事會辦公室）負責人兼任辦公室主任。公司制定《中鋁國際社會責任工作實施細則》，明確公司各成員企業及部門職責、履責指標，並通過負面清單梳理，制定《中鋁國際社會責任管理模組及負面清單》，預防各單位、各層級重要決策和日常運營管理中的社會責任工作風險。

The company has established a social responsibility leadership group with the company's party committee secretary and chairman as the team leader, the president as the standing deputy team leader, other members of the management team as the deputy leaders, and the heads of each department as the team members. This group is responsible for reporting the progress of social responsibility work upwards, conveying the guidance and management opinions of Chinalco Group on social responsibility, and overall planning the implementation of the company's social responsibility work. The leading group has an office responsible for the daily work of social responsibility. The president's office (the office of the board of directors) plays the central functional department, and the head of the president's office concurrently serves as the director of the social responsibility office. The company formulated the "CHALIECO Social Responsibility Implementation Rules" to clarify the responsibilities and performance indicators of the company's member companies and departments. Through the negative list, the company has also formulated the "CHALIECO Social Responsibility Management Module and Negative List" to prevent social responsibility risks during important decision-making and daily operation at all levels.



利益相關方參與 Stakeholder Participating

中鋁國際高度重視與利益相關方的溝通交流，建立起便捷有效的溝通機制，積極聽取不同利益相關方的合理要求與期望，就相關方關注的內容進行回應，不斷提升公司運營透明度，提高運營管理能力。

CHALIECO attaches great importance to communication with stakeholders, has established a convenient and effective communication mechanism, actively listening to the reasonable demands and expectations of different stakeholders, and responding to the concerns of relevant parties, so as to continuously improve the transparency of the company's operations and improve operations ability.

利益相關方 Stakeholder	期望與訴求 Expectations and demands	溝通與回應方式 Communication and response methods		
政府與監管機構 Government and Regulatory Agencies	貫徹落實國家政策及法律法規 促進地方經濟發展 推動行業發展	Implement national policies and laws and regulations Promote local economic development Promote industry development	上報文件 建言獻策 專題匯報 洽談合作	Report file Offer advices and suggestions Special report Cooperation talks
股東 Shareholder	收益回報 合規運營 安全生產	Returns Compliance operation Safe production	公司公告 專題匯報 實地考察	Company announcement Special report on-the-spot investigation
客戶及合作夥伴 Clients and Partners	依法履約 誠信經營 優質產品與服務	Fulfill the contract in accordance with the law Integrity management Quality products and services	商務溝通 顧客反饋 交流研討	Business communication Customer feedback Exchange seminar
環境 Environment	合規排放 節能減排 保護生態	Complied with discharge information Energy-saving Ecology conservation	工作匯報 報表報送 調研檢查	Work report Report submission Investigation and inspection
員工 Staff	權益維護 職業健康 薪酬福利 職業發展	Rights protection Occupational health Salary and benefits Career development	職工代表大會 集體協商 民主溝通平臺	Workers congress Collective bargaining Democratic communication platform
社區及公眾 Community and the Public	改善社區環境 參與公益事業 信息公開透明	Improve the community environment Participate in public welfare Open and transparent information	公司網站 公司公告 採訪交流	Company website Company announcement Interview and exchange

董事會參與 BOD Leading

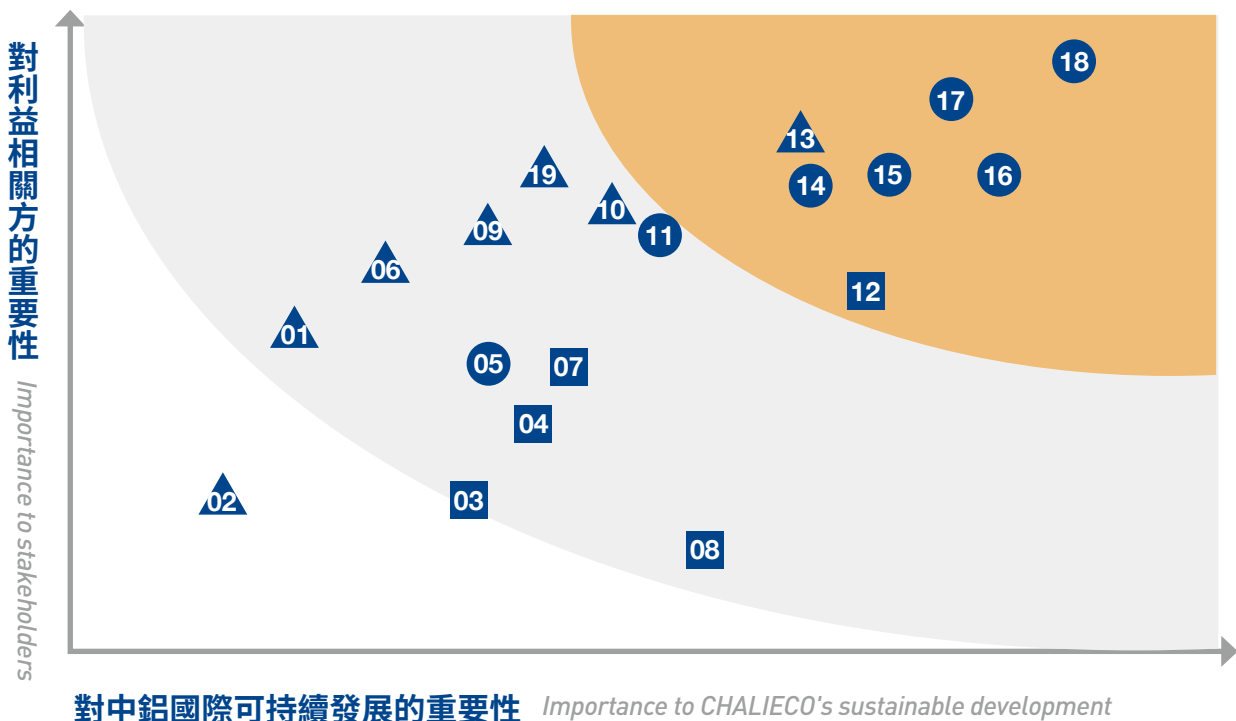
公司董事會負責制定社會責任方針、策略及目標，審核社會責任治理風險評估結果，並對可能影響公司業務運作的相關事宜，及對利益相關方重點關注的社會責任相關事宜進行監察。在社會責任報告信息披露過程中，董事會負責對利益相關方溝通結果及重大議題判定結果進行審批，並審核社會責任報告信息披露內容。2020 年，公司召開董事會 7 次，審議 ESG 相關議題 6 個。

The company's board of directors is responsible for formulating social responsibility policies, strategies and objectives, reviewing the results of governance risk assessments, and conducting relevant matters that may affect the company's operations, as well as monitoring the matters related to social responsibility that are of key concern to stakeholders. In the process of information disclosure in the social responsibility report, the board of directors will review the exchange results with stakeholders and the determination of major issues, and review the content of information disclosure in the social responsibility report. In 2020, the company held 7 board directors conference and reviewed 6 issues related to ESG.

重大議題判定 Decision-making Process for Major Issues

中鋁國際梳理宏觀經濟政策導向，研究分析 ESG 報告相關披露要求，結合公司年度業務回顧總結、利益相關方關注議題、高管審閱意見等，對中鋁國際 2020 年 ESG 重大議題進行評估和分析，得出重大性議題矩陣如下：

CHALIECO has sorted out the macroeconomic policy guidance, studied and analyzed the relevant disclosure requirements of the ESG report, combined with the company's annual business summary, stakeholder concerns, and senior management comments, etc., to evaluate and analyze CHALIECO's 2020 ESG major issues. The matrix of major issues is as follows:



● 高重要性 Vital
● 很高重要性 High priority
● 極高重要性 Top priority

● 管制議題 Regulatory issues
▲ 社會議題 Social issues
■ 環境議題 Environmental issues

社區發展貢獻	01	Community development contribution
公益事業投入	02	Investment in public welfare
水資源使用管理	03	Water utilization management
綠色辦公	04	Green office
供應鏈管理	05	Supply chain management
員工溝通	06	Employee communication
廢棄物管理	07	Waste management
能源使用管理	08	Energy usage management
員工關愛政策	09	Employee care policy
員工培訓發展	10	Staff training and development
項目質量管理	11	Project quality management
綠色施工	12	Green construction
員工權益保護	13	Employees' rights protection
自主創新	14	Innovation
風險管理	15	Risk management
內部廉政管理	16	Internal integrity management
安全生產	17	Safe Production
合規合法經營	18	Compliance and legally operating
精準扶貧	19	Targeted poverty alleviation

01



中鋁國際加大人力資本和知識資本投入，開展技術研發與創新，提升研發設計與技術服務能力和現代化建造能力，並以質量安全為支撐，持續強化項目監督與管理，貢獻優質工程、精品工程。

CHALIECO has increased investment in human resource and intellectual capital, carried out technological research and innovation, strengthened R&D and technical service capabilities. Supported by quality and safety, the company continued to strengthen project supervision and management, and contributed to high-quality projects .

匠心之“鋁” 引領行業

"Aluminum" with Ingenuity to Lead the Industry



- 優質工程 High-quality Project
- 技術創新 Technological Innovation
- 安全生產 Work Safety
- 責任產業鏈 Responsibility Industry Chain

優質工程 High-quality Project

中鋁國際謹守《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《中鋁國際工程股份有限公司質量管理辦法》等，不斷加強工程總承包能力建設，對工程設計和開發進行全程管控，嚴格工程質量、嚴守工程進度，落實項目責任，打造匠心工程。

我們開展項目管理化標準體系建設，推動質量行為和工程實體質量控制標準化；健全工程項目質量管理體系，推行項目經理負責制，明確質量管理職責；不斷創新、優化施工工法，提升項目質量；持續強化工程質量檢測管理，以優質服務為客戶創造價值。2020 年，公司新增 37 項部級施工工法，累計獲得國家級優質工程 3 項，省部級以上優質工程（施工類）12 項，獲得有色金屬建設行業成果獎 119 項。

中國施工企業協會

國家優質工程金獎

- 第 8.6 代薄膜電晶體液晶顯示器件（TFT-LCD）項目動力中心、廢水站及附屬工程

國家優質工程獎

- 內蒙古蒙泰達拉特鋁板帶
- 車用鋰電正極材料產業化及環保技改項目

中國有色金屬工業協會

有色協會優質工程

- 中鋁東南銅業銅冶煉基地項目原料系統
- 中鋁東南銅業銅冶煉基地項目硫酸系統
- 中鋁東南銅業銅冶煉基地項目辦公及生活設施系統
- 山東工程 10 萬噸精細分子篩項目（一期）
- 山東工程 15 萬噸環保吸附新材料生產線（一期）
- 山東工程 10 萬噸板狀剛玉項目（一期）
- 西安煜陽重型機械製造有限公司生產基地

- 第 8.6 代薄膜電晶體液晶顯示器件（TFT-LCD）項目電視組裝廠房

- 第 8.6 代薄膜電晶體液晶顯示器件（TFT-LCD）項目動力中心、廢水站及附屬工程

北京市工程建設質量管理協會

長城杯（省部級）

- 北京環球影城主題公園項目

中國工程建設焊接協會

全國優秀焊接工程

- 棗莊振興炭材 4 萬噸 / 年超高功率電極材料項目延遲焦化安裝工程

陝西省建築業協會

陝西省建築優質結構工程

- 安康高新區青峰、新強片區棚戶區改造項目 19# 樓工程

CHALIECO abides by the "Product Quality Law of the People's Republic of China", "Construction Quality Management Regulations", "Construction Project Management Regulations" and other relevant national laws and regulations, and formulated "CHALIECO Quality Management Measures" to strengthen the EPC capacity, strictly controlling the whole process of project design, development and quality, observing project progress, and creating ingenious projects.

We carry out the construction of a standard project management system to promote the standardization of engineering quality assurance (QA) and quality control (QC). The company has also improved the project quality management system, to implement the project manager responsibility system, and clarify quality management responsibilities; We improve project quality by continuously innovating and optimizing construction methods to; continue to strengthen engineering quality inspection management, and create value for customers with high-quality services. In 2020, the company added 37 ministerial-level construction methods, accumulatively won 3 national-level high-quality projects, 12 provincial high-quality projects (construction), and won 119 awards in the non-ferrous metal industry.

China Association of Construction Enterprises Management

National Quality Engineering Gold Award

- The waste water treatment station and ancillary projects of 8.6th generation thin-film-transistor liquid-crystal display (TFT LCD) project

National Quality Engineering Award

- Montadalat aluminum plate and strip project in Inner Mongolia
- Cathode materials for automotive lithium batteries Industrialization and Environmental Technology Upgrade Project

China Nonferrous Metals Industry Association

High-quality Project

- Raw material system of Chinalco Southeast Copper Limited
- Sulfuric acid system of Chinalco Southeast Copper Limited
- Office and living facilities system of Chinalco Southeast Copper Limited
- 100,000-ton Fine Molecular Sieve Project of Shandong Engineering Institute (Phase I)
- 150,000 tons of environment-friendly adsorption new material production line of Shandong Engineering Institute (Phase I)
- 100,000-ton Tabular Corundum Project of Shandong Engineering Institute (Phase I)

- Xi'an Yuyang Heavy Machinery Manufacturing Co., Ltd. production base

- TV assembly plant for 8.6th generation thin-film-transistor liquid-crystal display (TFT LCD) project

- The waste water station and ancillary projects of 8.6th generation thin-film-transistor liquid-crystal display (TFT LCD) project

Beijing Engineering Construction Quality Management Association

Great Wall Cup (provincial and ministerial level)

- Beijing Universal Studios Theme Park Project

China Engineering Construction Welding Association

National Excellent Welding Project

- Delayed coking unit for the 40,000 tons/year ultra-high power electrode material project of Zaozhuang Zhenxing Carbon Material

Shaanxi Construction Industry Association

Shaanxi Province High-quality Structure Project

- 19# Building Project of Shantytown Reconstruction Project in Ankang High-tech Zone

Award for High-quality Projects of CHALIECO in 2020 (Construction)

我們組織 QC 小組活動，提升質量意識、改進項目質量；積極創建標杆項目，推動項目管理水準提升。2020 年，公司累計獲得省部級以上優秀 QC 成果 75 項，其中一等獎 17 項，二等獎 39 項，三等獎 19 項。中鋁國際上榜美國《工程新聞記錄》（ENR）雜誌 2020 年度“全球工程設計公司 150 強”“國際工程設計公司 225 強”“全球承包商 250 強”和“國際承包商 250 強”。

The company organize QC group to enhance quality awareness and improve project quality. Besides, we have also actively created benchmark projects and promoted the improvement of project management. In 2020, the company has won a total of 75 outstanding QC awards at or above the provincial and ministerial level, including 17 first prizes, 39 second prizes, and 19 third prizes. CHALIECO was recognized as the "Top 150 Global Design Firms", "Top 225 International Design Firms", "Top 250 Global Contractors" and "Top International Contractors" by the Engineering News Record(ENR) Magazine in the US.



四川成都建川綜合陳列館鋁合金網殼結構建設項目
Aluminium alloy reticulated shell of Comprehensive Exhibition Hall in Chengdu, Sichuan



越南仁基氧化鋁工程項目
Vietnam Nhan Co 650kt/a alumina Project



500kA 大型預焙電解槽工程——貴州華仁項目
Guizhou Huaren large-scale pre-baked electrolytic cell project



中鋁國際工程諮詢、勘察、設計及信息技術等成果獲佳績

案例

CHALIECO's new achievements in engineering consulting, survey, design and information technology

Case

中國有色金屬建設協會公佈“2020年度有色金屬建設行業工程諮詢、勘察、設計及信息技術等成果評價（部級）”結果，中鋁國際8家成員企業申報的119項成果獲獎，數量接近本年度上榜總數的三分之一，顯示出中鋁國際在有色金屬建設行業的雄厚實力和領先地位。

The China National Association for Nonferrous Metal Industries Construction announced "2020 Evaluation of Achievements in Engineering Consulting, Survey, Design and Information Technology of the Non-ferrous Metal Construction Industry (Ministry Level)". The 119 achievements declared by the 8 member companies of CHALIECO have won awards, accounting for one-third of the total awards on the list, which shows the strong strength and leading position of the company in the non-ferrous metal construction industry.

客戶服務

Client Service

中鋁國際高度重視項目管理及質量管控工作，以優質的服務和領先的技術贏得客戶的認可。編制和實施《項目管理標準化手冊》，致力打造標杆項目，力爭優質工程，為客戶創造價值。組織開展顧客滿意度調查，年度顧客滿意度98.35%，根據客戶提出的意見建議，不斷改善和提高質量管理體系執行標準，逐步提高質量管理體系運行水準。

CHALIECO attaches great importance to project management and quality control, and has won recognition from customers with its high-quality service and leading technology. The company has compiled and implemented the "Project Management Standardization Manual", striving to build benchmark projects, and creating more value for clients. We also have carried out surveys on customer satisfaction which demonstrated annual satisfaction rate reaching 98.35%. Based on the opinions and suggestions from customers, we have been continuously improving implementation standards of the quality management system, and gradually enhancing the operation of the quality management system.

技術創新 Technological Innovation

有色金屬工程設計與承包行業是技術密集型、智力密集型的生產性服務業，中鋁國際堅定實施科技引領戰略，持續提高先進技術以及持續技術創新能力，在有色金屬行業設備大型化、資源綜合利用、節能減排、信息化創新成果應用等方面開展科研與技術攻關，強化企業競爭力。近年來，中鋁國際拓展建築工程用鋁領域研究，在智能製造、智能建造、資源綜合利用等方面，打造新的核心競爭力。2020年，中鋁國際研發投入6.43億元，研發投入總額占營收比例2.79%。

The engineering design and contracting of non-ferrous metal industry is a technology-intensive and intelligence-intensive industry. CHALIECO firmly implements the technology-leading strategy, continues to improve advanced technology and innovation capabilities, and tries to make breakthrough in equipment upgrade, resources unitization, energy saving and emission reduction and application of technological innovation in the non-ferrous metal industry to strengthen the competitiveness of enterprises. In recent years, CHALIECO has expanded its research in the field of aluminum for construction projects, and has created new core competitiveness in intelligent manufacturing, intelligent construction, and comprehensive utilization of resources. In 2020, the company has invested 6.43 million yuan in R&D, the total R&D investment accounts for 2.79% of revenue.

中鋁國際科技項目成果情況 CHALIECO's Technology Project Achievements



提升創新能力 Improve innovation ability

公司制定了《中鋁國際科研管理規定》《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》等制度文件，健全科技創新和研發業務的科學評價體系，加大科研資金投入，搭建科技創新平臺，完善科技人才培養和激勵機制，加強核心技術攻關，不斷提升創新能力。2020 年，昆勘院獲批“雲南省岩土工程與地質災害重點實驗室”。

截至報告期末，中鋁國際擁有 6 個國家級工程技術研究中心和國家級技術中心，2 個國家博士後科研工作站，14 個省級技術中心，1 個省級博士後創新實踐基地，2 個省級工程實驗室。

By formulating "CHALIECO Scientific Research Management Regulations", "CHALIECO Innovation Award Interim Measures", "CHALIECO Technology Transfer and Licensing Management Measures", etc., the company tries to improve the evaluation system for technology innovation and R&D, increase investment, build an innovation platform, improve the training and incentive mechanism for talents, strengthen the research on core technologies, and continuously improve the ability of innovation. In 2020, Kunming Survey and Design Institute Co., Ltd. of China Nonferrous Metals Industry (hereinafter referred to as Kunming Survey and Institute) was approved as "Key Laboratory of Geotechnical Engineering and Geological Hazard of Yunnan Province". Relying on the provincial technology center.

As of the end of the reporting period, CHALIECO has 6 national engineering technology research centers and national technology centers, 2 national post-doctoral research workstations, 14 provincial technology centers, 1 provincial post-doctoral innovation base, and 2 provincial engineering laboratory.



長沙院入選國家“科改示範行動”企業

案例

cinf was selected as a national "Science Reform Demonstration Enterprise"

Case

2020年，長沙有色冶金設計研究院有限公司（以下簡稱“長沙院”）入選國企改革“科改示範企業”。以此為契機，長沙院從混合所有制改革、完善公司治理體制機制、健全市場化選人用人機制、健全激勵機制、激發科技創新動能、堅持黨的領導加強黨的建設等6個方面，分別制定重點改革任務，明確每項改革任務的牽頭單位、推進措施和完成時限，為長沙院建立健全長效激勵機制、吸引和留住優秀人才、調動核心技術（業務）骨幹的積極性，實現長遠發展進一步奠定基礎。

In 2020, Changsha Engineering & Research Institute Limited for Nonferrous Metallurgy. (hereinafter referred to as "Cinf") was selected as a "Science and Technology Reform Demonstration Enterprise" for the reform of state-owned enterprises. Taking this as an opportunity, the cinf has formulated key reforms in five aspects: mixing ownership reform; improving the system and mechanism of corporate governance; improving the market-based selection and employment mechanism; improving the incentive mechanism; stimulating the momentum of technological innovation; and adhering to the leadership of the party to strengthen party building. Based on the 6 aspects, the institute has formulated key reform tasks, clarifying the lead unit, advancement measures and time limit, and further laying a foundation for cinf to establish and improve a long-term talent-attracting mechanism and achieve long-term development basis.



創新成果應用 Innovation Application

憑藉設計諮詢、工程建設、裝備製造三大業務之間的協同效應優勢，中鋁國際以市場為導向，積極推動創新技術成果轉化應用，促進有色金屬產業上下游共同發力、產學研協同創新，助力企業高質量發展。

Relying on the synergy advantage among the three major businesses of design consulting, engineering construction, and equipment manufacturing and market-oriented incentive, CHALIECO actively promotes the transformation and application of innovative technological achievements, and promotes the joint efforts of industry's upstream and downstream and the collaborative innovation throughout production and training to help high-quality development of the enterprise.

2020 年，公司多項重要成果得到推廣應用：

In 2020, the Company's several major achievements have been broadly spread and applied

瀋陽院“大型氧化鋁氣態懸浮焙燒爐的研發與應用”成果形成系列化產品，將應用於重慶萬州氧化鋁焙燒爐總承包項目

The deliverables from The R&D and Application of Large-sized Gas Suspension Calciner for Alumina carried out by the Shenyang Aluminum & Magnesium Engineering & Research Institute Co., Ltd.(hereinafter referred to as Sami) have been converted into a collection of products and will be applied to the EPC project of alumina calciner located in Wanzhou, Chongqing.



貴陽院“七點進電超大型鋁電解槽精確調節深度節能成套技術”不僅在多家國內企業取得成功應用，還憑藉運行穩定、指標領先等優勢，將輸出海外，應用於印尼華青項目

The Seven-point Feed Super Large Aluminum Electrolytic Cell Precise Regulation and Deep Energy Saving Assembly Technology developed by the Guiyang Aluminum & Magnesium Design Institute Co., Ltd. (hereinafter referred to as Gami) has been successfully applied by many domestic enterprises and more importantly, has been exported and adopted by Hakin's Indonesia-based project, owing to its stability of running and best-in-class indicators, among other benefits.



長沙院自主研發的“富氧粉煤噴吹熔池熔煉技術和裝備研究”項目在廣西南方有色金屬公司鉛系統還原爐上進行工業化應用，其生產指標顯著提升

The Research on Oxygen-enriched Pulverized Coal Blowing Bath Smelting Technology and Equipment conducted by the Cinf independently has been industrialized and applied to the reducing furnace of the lead system at Guangxi Nanfang Nonferrous Metal Co., Ltd and resulted in significant improvements in production indicators.



中色科技高端鋁合金帶材連續退火工藝及裝備已經在東輕公司投入試生產

The high-end aluminum alloy strip continuous annealing process and equipment of CNPT have been put into pilot production at Northeast Light Alloy Co., Ltd.



山東工程研發的“大型企業產銷管控系統”已推廣至多家單位使用

The Production and Sales Management and Control System for Large Enterprises developed by Chalieco Shandong Engineering Technology has been adopted by a number of users.





白音華項目採用 500kA 預焙陽極電解生產技術

案例

500k pre-baked anode for aluminum electrolysis technology in Baiyinhua Project

Case

白音華高精鋁板帶產品項目一期建設工程是國家電力投資集團有限公司及內蒙古錫林浩特市的重點建設項目，項目建設規模為年產 40 萬噸高精鋁板帶，電解鋁生產系統組態 300 台瀋陽院自主研發的 SY500 預焙陽極電解槽。2020 年，白音華項目圓滿完成全年建設任務，先後榮獲“中國有色金屬建設行業新技術應用示範工程”“全國有色金屬建設行業 2020 年度建設工程項目施工安全生產標準化工地”“全國有色金屬建設行業 2019-2020 年度綠色施工示範工程”三個部級獎項。

The first phase of the Baiyinhua high-end aluminum plate and strip project is a key project of the SPIC and Xilinhot government in Inner Mongolia. To reached annual output of 400,000 tons, the project used 300 pre-baked anode electrolyzers, SY500, independently developed by Sami were applied. In 2020, the Baiyinhua project successfully completed the annual target, and successively won the "China Non-ferrous Metal Construction Industry New Technology Application Demonstration Project", "2020 Standard Chemical Site of Work Safety", and "2019-2020 Green Construction Demonstration Project".



推進信息化建設 Informatization Construction

數字化、信息化轉型是改造提升傳統動能、培育發展新動能的重要手段。中鋁國際一方面不斷推進自身數字化、信息化轉型，加強新形勢下自身工程總承包能力建設；另一方面加強有色金屬行業信息化、數字化轉型產品和系統解決方案研發，增強競爭優勢的同時助力行業信息化轉型。

Digitization and information transformation are important means to transform and upgrade traditional kinetic energy and cultivate new kinetic energy for development. On the one hand, CHALIECO continues to promote its own digital and information transformation, and strengthen its EPC capacity under the new situation. On the other hand, the company also strengthens the digital transformation in R&D and provides systematic for the non-ferrous metal industry to enhance the competitiveness and help the industry informatization transformation.

行業信息化應用研究與開發：

Information application and R&D in nonferrous industry:

勘探與監測領域 Surveying and monitoring field

- 長勘院“AL-DSR 工程災害智能監控雷達系統”項目完成研發，向產業化進程邁出堅實一步

The "AL-DSR Engineering Disaster Intelligent Monitoring Radar System" project of Changkan Institute has completed research and development, which is a solid step towards industrialization.

- 長勘院“安全與環境機器人廣義巡檢系統”完成技術路線論證和詳細設計；“礦山重大危險源無人自動安全巡檢系統”完成設計工作，並加工出樣機系統，實現無人機自動充電、自動換電、自動起飛和自動降落等功能

The "Safety and Environment Inspection Robot" of Changkan Institute has completed the technical demonstration and detailed design. The "Unmanned Automatic Safety Inspection System for Major Hazardous Sources in Mines" has completed the design work and prototype system to realize the functions of automatic charging, automatic power exchange, automatic take-off and automatic landing of the drone.

- 長勘院自主研發的 OnlineSAR 工程災害智能化監測雷達系統監測精度和技術指標全部達到現行規範和既定目標要求，已具備全面推廣應用條件

The OnlineSAR Disaster Monitoring Radar System independently developed by Changkan Institute has reached the accuracy and technical indicators required by the current specifications for comprehensive promotion and application.

加快數字化、信息化轉型 Digital and information transformation

中鋁國際加強信息化能力建設，推廣 BIM 技術應用，將建築空間管理、設備管理、隱蔽工程管理、節能減排管理等納入項目設計與施工，強化現場環境監測、智能調度、物資監管、數字交付等能力，提升工程數字化交付能力。

CHALIECO has strengthened its informatization capacity, promoted the application of BIM technology, incorporated building site management, equipment management, concealed project management, energy conservation and emission reduction management, etc. into project design and construction, and strengthened on-site environmental monitoring, smart scheduling, material supervision, and improved the digital delivery capabilities of engineering.



貴陽院設計的廣西華升大型氧化鋁數字化設計及應用項目，是國內首個全廠全專業利用 BIM 技術進行施工圖設計的項目

The large-scale alumina digital design and application project in Guangxi is the first project in China that uses BIM technology to design construction drawing

- 昆勘院“採空區群三維聯測關鍵技術”，通過三維建模視覺化助力礦山安全生產和保有資源安全再利用

The "Key Technology of 3D Model of the Goaf Group" of Kunming Survey and Design Institute helps mining enterprises to work safely and maintain the safe reuse of resources through three-dimensional modeling and visualization

冶煉生產領域 Smelting Production

- 貴陽院參與人工智能產業創新，“智能鋁電解多功能機組核心裝置”項目實現電解鋁生產換極全過程智能化

The "Intelligent Aluminum Electrolysis Multifunctional Unit Core Device" project Gami took part in realizes the intelligitization of the whole process of electrolytic aluminum production

互聯網應用領域 Internet Application

- 中色科技有色金屬加工工業互聯網平臺項目立足於互聯網媒介，改變有色金屬加工行業傳統備件採購、管理機制和流程，實現行業企業備品備件庫的互聯互通，有效減少各企業間備件庫存量，提高社會資源利用效率，降低企業運營成本

The Internet platform of CNPT is based on the Internet, upgrading the traditional spare parts procurement, management and process of the non-ferrous metal processing industry, realizes the interconnection of the spare parts warehouses of industry enterprises, effectively reduces the enterprises spare parts inventory, and improves the efficiency of social resource utilization, which would reduce business operating costs.



貴陽院被確定為國家新一代人工智能產業創新揭榜單位

案例

Gami was identified as the pioneering unit for national new-generation artificial intelligence industry Case

2020 年 2 月，國家工業和信息化部發佈新一代人工智能產業創新重點任務入圍揭榜單位名單，貴陽院被確定為“智能鋁電解多功能機組核心裝置”項目揭榜單位。

貴陽院“智能鋁電解多功能機組核心裝置”項目旨在解決目前鋁電解生產作業中勞動強度大、技能要求高、人工成本高、用工難等難題，全面引導世界鋁冶煉行業邁向智能化，佔領行業智能製造制高點，擴大國際裝備市場份額，引領全球電解鋁企業的裝備技術進步。

In February 2020, the Ministry of Industry and Information Technology released the list of shortlisted units for the new generation of artificial intelligence industry.

Gami was identified as pioneering unit for the project of "Intelligent Aluminum Electrolytic Multifunctional Unit Core Device". The "Intelligent Aluminum Electrolytic Multifunctional Unit Core Device" aims to solve the problems of high labor intensity, high skill requirements, high labor costs, and labor difficulties in operations, and comprehensively guide the world's aluminum smelting industry toward intelligence. To occupy the commanding heights of intelligent manufacturing in the industry, the project would expand the international equipment market share, and lead the equipment technology advancement of global electrolytic aluminum enterprises.

知識產權保護 Intellectual Property Protection

中鋁國際注重知識產權管理，根據《中華人民共和國專利法》《中華人民共和國著作權法》《中華人民共和國反不正當競爭法》《企業知識產權管理規範》等相關法律法規，制定《中鋁國際專利管理辦法》，開展知識產權創造、管理、保護與運用系統工作，推動技術進步，提升競爭能力。中鋁國際堅持自主創新，在保障自有知識產權不被侵犯的同時，避免侵犯其他企業知識產權。

公司企業管理部負責知識產權事務，對知識產權申請、維護等進行統一管理，法務與風控部負責知識產權許可轉讓風險審核、知識產權糾紛處置等相關工作，市場開發部及下屬企業負責專利推廣與普及應用。同時，中鋁國際通過激勵機制改革，推進公司及所屬企業制定知識產權獎勵、報酬和懲罰辦法，促進知識產權工作。2020 年，中鋁國際專利申請 317 件，國內授權專利 222 件，海外專利授權 12 件。

CHALIECO attaches great importance to intellectual property management. According to the "Patent Law of the People's Republic of China", "The Copyright Law of the People's Republic of China", "The People's Republic of China Anti-Unfair Competition Law", "Enterprise Intellectual Property Management Regulations" and other relevant laws and regulations, the company has formulated "CHALIECO Patent Management Measures" to better create, manage, protect and apply intellectual property rights to promote technological progress and enhance competitiveness. CHALIECO insists on independent innovation and protects its own intellectual property rights from being infringed while avoiding infringement of the intellectual property rights of other enterprises.

The Enterprise management and Science and Technology Department is responsible for intellectual property affairs and management of intellectual property applications and maintenance; the Legal Affairs and Risk Control Department is responsible for IP licensing transfer risk review and dispute resolution; the Marketing Development Department and affiliated companies are responsible for patent promotion and application. At the same time, through the reform of the incentive mechanism, CHALIECO has promoted the company and its affiliated companies to formulate intellectual property rewards, remuneration and punishment measures to promote intellectual property work. In 2020, CHALIECO has 317 patent applications, 222 domestic authorized patents, and 12 overseas patents.

安全生產 Work Safety

中鋁國際深入踐行“一切風險皆可控制、一切事故皆可預防”安全管理理念，貫徹落實“安全第一、預防為主、綜合治理”的安全生產方針，本著“強基礎、抓重點、補短板”的工作思路，促進安全生產落細落小落實。報告期內，公司安全生產總投入 16,226 萬元。

CHALIECO deeply implements the safety management concept of "all risks should be controlled, and all accidents should be prevented", and implements the safety production policy of "safety first, prevention first, with comprehensive management" to promote the implementation of safety production. During the reporting period, the company's total investment to improve safety has reached 162.26 million yuan.



公司安全生產
總投入

16,226 萬元

安全管理體系 Safety Management System

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、規範化及體系化水準。針對工程技術企業安全風險管控重點在基層、難點在一線的特點，中鋁國際制定《工程項目安全生產責任》，明確項目現場施工安全管理及各職級的安全生產責任，通過風險分級管控，確定風險控制措施，保障施工人員人身安全、減少職業病發生。中鋁國際編制適用於工業施工、民用建築施工、市政道路施工、非煤礦山施工、勘察測繪和加工製造不同領域的職業健康考評標準，加強考核管理。

Adhering to the combined operation of the CAHSE and QHSE systems, CHALIECO incorporates quality, health, safety, and environment into the risk management and control system, conducting self-assessment, graded review of CHINALCO and CHALIECO, and third-party external audits to improve the level of institutionalization, standardization and systematization of management. In view of the fact that difficulty of safety risk is on the front line, CHALIECO has formulated the "Project Safety Production Responsibility" to clarify the project site construction safety management and the safety responsibilities of all ranks, and determine the risks through risk management and control measures to ensure the personal safety and reduce the occurrence of occupational diseases. CHALIECO has compiled occupational health assessment standards applicable to industrial construction, civil construction, municipal road construction, non-coal mine construction, surveying and mapping, and processing to strengthen assessment management.



VR 安全教育體驗

Experience VR Safety education



中鋁國際職業健康安全管理架構

CHALIECO Occupational Health, Safety and Environment (HSE) Management Framework



建設安全現場 Safe Construction Site

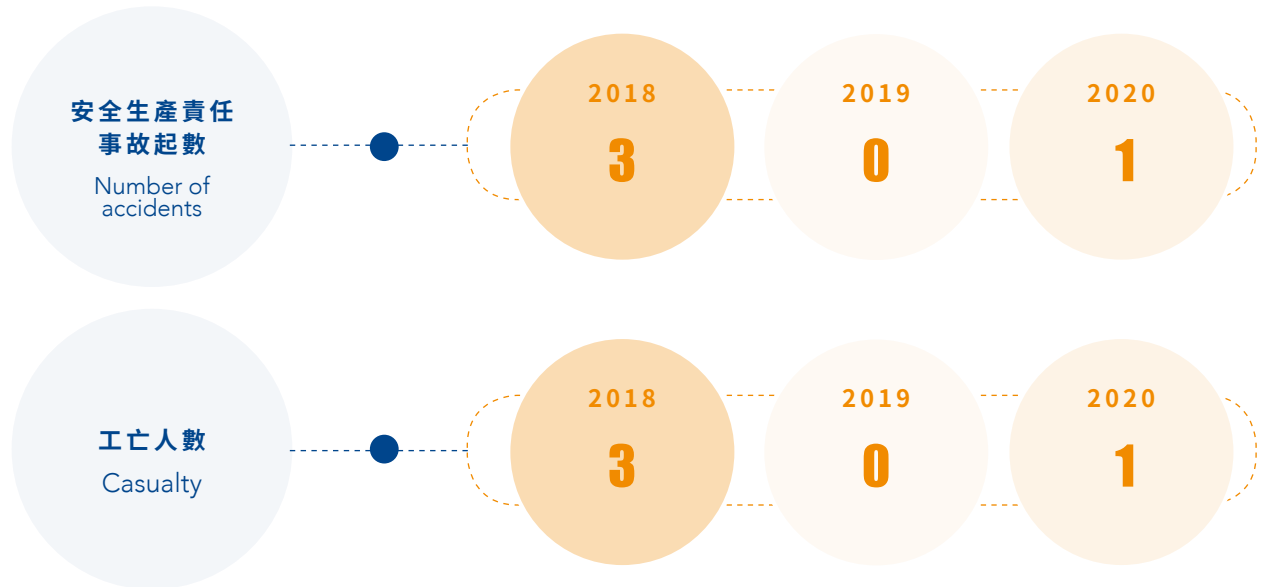
中鋁國際持之以恆抓好現場安全管理，對項目安全生產明確提出“十條禁令”“七必須”“八不准”要求。公司不斷強化重點環節管理，落實項目經理責任，以項目現場檢查為重點，扎實推進安全生產專項整治三年行動。在作業現場推廣使用中鋁國際 CARC 工具，現場風險評價得到了改善。組織企業開展安全生產集中整治、安全生產及疫情防控等自查。對重點項目開展“抓兩頭、帶中間”專項督查，並對各成員企業機關、部分二級單位及項目部進行滲透式的督查，通過督查檢查，有效改善了現場的安全管理現狀。

中鋁國際多個項目安全管理工作獲得政府、業主的表彰和認可。其中由瀋陽院總承包的內蒙古錫林郭勒白音華煤電有限公司高精鋁板帶產品項目一期建設工程以及十二冶安陽國際金融中心項目榮獲“全國有色金屬建設行業 2020 年度建設工程項目施工安全生產標準化工地（部級）”榮譽稱號。

CHALIECO has persisted in implementing site safety management and clearly put forward the "ten-ban", "seven-must" and "eight prohibitions" requirements for project safety in production. The company continuously strengthens the management of key links, implements the responsibilities of project managers, and focuses on project site inspections, and solidly promotes the three-year special rectification of production safety. The use of CHALIECO's CARC tools was promoted on the job site, and the on-site risk assessment has been improved. The company also organized enterprises to carry out self-inspections such as centralized rectification of production safety and epidemic prevention and control. We also have conducted special supervision on key projects and penetrated the supervision on member enterprise agencies and some secondary units and project departments. Through supervision and inspection, the current safety management situation on the spot has been effectively improved.

The safety management of many projects of CHALIECO has been commended and recognized by the government and the clients. Among them, the first phase of the high-end aluminum plate and strip project of Baiyinhua and the Anyang International Financial Center project won the honorary title of "2020 Standard Site of Work Safety of Nonferrous Metal Construction".

中鋁國際 2018-2020 年度健康與安全關鍵績效 CHALIECO's key health and safety performance in 2018-2020



提升安全意識 Safety Awareness

中鋁國際從“基層、基礎、技能”為切入點，廣泛開展安全教育，強化安全培訓，並通過豐富活動載體，營造濃厚安全文化氛圍等方式，為高質量發展奠定安全基石。公司通過專題培訓、警示教育、應急演練、文化宣傳等形式，調動員工參與安全管理的積極性和主動性。近年來，中鋁國際加強現代科技手段在安全培訓與教育中的應用，創新動漫視頻宣傳、VR 安全體驗館等方式，增強現場人員安全意識教育。公司組織開展施工現場安全管理、高速公路施工安全管理、基層安全管理人員履職能力等 8 期培訓，累計 1,225 人次參訓，通過培訓解決了問題、提高了人員能力，取得了一定效果。全年累計開展應急演練 382 次，共 7,968 人次參與。

Starting from "basic level, foundation, and skills", CHALIECO conducts extensive safety education, strengthens safety training, and creates a strong safety culture through enriching activity, laying the foundation of safety for high-quality development. The company mobilizes the enthusiasm and initiative of employees to participate in safety management through special training, warning education, emergency drills, etc. In recent years, CHALIECO has strengthened the application of modern technology in safety training and education, innovated in animation video promotion, VR safety experience hall, etc., to enhance the safety awareness education of on-site personnel. The company organized and carried out 8 sessions of training on construction site safety management, highway construction safety management, and personnel's ability to perform safety management duties using online and offline training and seminars. The total number of participants was 1,225, and the training has solved problems and improved personnel capabilities and achieved certain results. In the whole year, all enterprises carried out a total of 382 emergency drills, with a total of 7,968 people participating.



推出“中鋁國際安全強企”小程序

案例

Launched "Safety for a Strong Enterprise" Mini App

Case

中鋁國際利用互聯網技術提升安全意識與能力，與中國有色報合作推出“中鋁國際安全強企”微信小程序安全知識答題活動，公司累計註冊 10,635 人，占比企業在崗員工人數的 78%，共 9,282 人完成考核答題，平均得分 81.5 分，在基層取得較好的反響。

CHALIECO uses Internet technology to enhance safety awareness and capabilities, and cooperates with China Nonferrous Press to launch the knowledge-answer activity on "Safety for a Strong Enterprise" Wechat mini app. 10,635 people registered, accounting for 78% of the company's employees. A total of 9,282 people completed the assessment and answered the questions, with an average score of 81.5 points.



2020 年 6 月，長勘院組織開展 2020 年度消防培訓及應急演練，進一步夯實廣大員工的消防安全理論和實操知識，提升全員消防安全應急處置能力

In June 2020, Changkan Institute organized fire and emergency drills to further consolidate the practical knowledge of the employees, and enhance the emergency response capabilities of all employees



責任產業鏈 Responsibility Industry Chain

作為生產性服務企業，中鋁國際不斷提高自身技術、研發、承包建設服務能力，積極推動有色金屬產業鏈安全、綠色、高質量發展。同時，我們也重視與公司業務相關聯供應商、分包商的責任，推動負責任、可持續產業鏈建設。

As a productive service company, CHALIECO has continuously improved its own technology, research and development, contracting and construction service capabilities, and actively promoted the safe, green, and high-quality development of the non-ferrous metal industry chain. At the same time, we also attach importance to the responsibilities of suppliers and subcontractors associated with the company's business, and promote the construction of a responsible and sustainable industrial chain.

採購管理 Procurement Management

中鋁國際遵守《中華人民共和國合同法》《中華人民共和國招標投標法》《中華人民共和國審計法》《中華人民共和國反不正當競爭法》等國家法律法規，制定《工程招投標管理及監督辦法實施細則》《工程建設招標投標督察辦法》《工程建設招標投標督察辦法實施細則》《本部費用招投標管理和監督辦法》等，規範中鋁國際及下屬企業採購管理，明確採購原則及流程，實施陽光採購，保障供應商、分包商公平參與競爭的權利。2020年，中鋁國際供應商總數3,864家，分包商總數1,305家。

Complying with the "Contract Law of the People's Republic of China", "The Tendering and Bidding Law of the People's Republic of China", "The Audit Law of the People's Republic of China", "The People's Republic of China Anti-Unfair Competition Law" and other national laws and regulations, CHALIECO has formulated the "Administrative and Supervision Measures for Project Bidding and Bidding", "Implementation Rules", "Project Construction Bidding Supervision Measures", "Construction Bidding Implementation Rules", etc., to standardize the procurement management of CHALIECO and its subsidiaries, clarify procurement principles and procedures, and guarantee fair competition. In 2020, CHALIECO has established cooperation with 3,864 suppliers and 1,305 subcontractors.

供應商、分包商管理 Supplier and Subcontractor Management

中鋁國際持續完善供應商管理體系，制定《中鋁國際供應商管理辦法》《合格供應商管理規定》《中鋁國際貿易類客戶和供應商信用風險管理辦法（暫行）》《中鋁國際客戶及供應商信用管理暫行辦法》等，規範供應商准入管理、退出管理，降低供應鏈風險。

在准入期間，公司要求承包商提供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。

在生產施工期間，為保障工程進度、質量及目標，中鋁國際按照《分包商安全重點管控辦法》，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。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進行清退並列入黑名單。公司將分包商納入項目安全環保教育培訓及監督管理中，嚴格檢查分包商文明施工情況，定期組織考評，敦促分包商落實好現場安全環保責任。

CHALIECO continues to improve its supplier management system, formulating "CHALIECO Supplier Management Measures", "Qualified Supplier Management Regulations", "CHALIECO Trade Customers and Supplier Credit Risk Management Measures (Interim)", "Interim Measures for CHALIECO Credit Management", etc., to standardize supplier access, management, and exit management, and reduce supply chain risks.

During the access period, the company requires contractors to provide QHSE management system and certification documents, and gives priority to suppliers that use green products.

During the production and construction period, in order to ensure the progress, quality and objectives of the project, CHALIECO, in accordance with the "Subcontractor Safety Key Management and Control Measures," to evaluate subcontractor and for a list of qualified subcontractors. The company continues to supervise the implementation of labor management, safety and environmental protection work, and remove subcontractors that violate the laws and regulations, or cause environmental incidents from the list. The company incorporates subcontractors into the project's safety and environmental protection training and supervision and management, strictly inspects the construction of subcontractors, regularly organizes evaluations, and urges subcontractors to implement on-site safety and environmental protection responsibilities.



02

綠水青山就是金山銀山。中鋁國際堅定踐行綠色發展理念，落實生態文明建設要求，積極應對氣候變化，加強能源資源管理與控制，嚴格廢棄物排放管理，研發環保技術，推廣鋁應用產品，助力有色金屬行業綠色轉型，為助力人與自然和諧共生貢獻力量。

Lucid waters and lush mountains are invaluable assets. CHALIECO firmly practices the concept of green development, implements the requirements of ecological civilization construction, actively responds to climate change, strengthens energy and resource management and control, waste management, research and development of environmental protection technologies. We also promote aluminum application products to help the green transformation of the non-ferrous metal industry and make contribution to the harmonious coexistence of man and nature.

綠色之“鋁”律動未來

"Aluminum" with Green to Rhythm Future



- 應對氣候變化 Tackling Climate Change
- 降低環境影響 Reduce Environmental Impact
- 推行環保技術 Promote Environmental Protection Technology
- 鋁應用推廣 Aluminum Application Promotion

應對氣候變化 Tackling Climate Change

氣候變化是當今人類面臨的重大全球性挑戰。中國政府已承諾，二氧化碳排放力爭於 2030 年前達到峰值，努力爭取 2060 年前實現碳中和。在該承諾下，中國政策法規、制度體系都將發生重要變化。鋁行業處於能源消費和碳排放重點領域，推動“碳達峰”、實現“碳中和”勢在必行。這為中鋁國際帶來了一定挑戰，也帶來新的機遇。一方面，我們要從項目施工與生產領域，積極推進減排降碳、非化石能源替代、低碳生產等降碳措施，主動參與、積極應對氣候變化，提升企業“低碳”競爭力。另一方面，將為我們聚焦碳減排關鍵技術研發、開展新裝備、新工藝攻關和成果應用，進而拓展工程項目市場份額帶來契機。開展鋁應用推廣也成為我們業務發展的有利機遇。氣候變化還容易引發各類地質災害，我們正在積極開拓地質災害治理新業務領域。

此外，我們還積極協同業主、客戶共同行動，從源頭治理碳排放，努力實現減汙降碳協同效應；重視運用基於自然的解決方案，並應用於環保治理相關項目中，助力減緩和適應氣候變化。

Climate change is a major global challenge facing mankind today. The Chinese government has promised that carbon dioxide emissions will reach a peak by 2030 and strive to achieve carbon neutrality by 2060. Under this commitment, China's policies, regulations, and institutional systems will undergo important changes. The aluminum industry is in the key areas of energy consumption and carbon emissions, and it is imperative to control "carbon peak" and achieve "carbon neutrality". This has brought certain challenges to CHALIECO, but also new opportunities. On the one hand, we must actively promote carbon reduction measures such as emission reduction and carbon reduction, non-fossil replacement, and low-carbon production in the field of project construction and production, actively respond to climate change, and enhance the "low-carbon" competitiveness of enterprises. On the other hand, it will bring us an opportunity to focus on the research and development of key carbon reduction technologies, develop new equipment, new technology research and application of results, and expand the market share of engineering projects. At the same time, the promotion of aluminum has also become a favorable opportunity for our business. Climate change is also prone to cause various geological disasters. We are actively exploring new business areas for geological disaster management.

In addition, we also actively cooperate with customers to act together to control carbon emissions from the source, and strive to achieve a synergistic effect of reducing pollution and carbon. We attach importance to the use of nature-based solutions and apply them to environmental protection projects to help mitigate and adapt to climate change.



我們採取的應對措施有

The countermeasures we have taken are

技術研究

Technology Research

- 研發更節電、低碳的綠色解決方案，通過技術優化，助力業主、客戶低碳排放
R&D for more energy-saving, low-carbon green solutions, through technological optimization, to help customers decrease carbon emissions
- 開展碳捕集、固碳技術等碳排放控制技術研究，為鋁行業低碳發展提供更好方案
To carry out research on carbon emission control technologies such as carbon capture and carbon sequestration technology to provide better solutions for the low-carbon development of the aluminum industry

生產與施工

Production and construction

- 採用高環保標準、低碳排放的設施及系統
To adopt facilities and systems with high environmental standards and low carbon emissions
- 採用低排放、清潔能源的工程設備
To use low-emission, clean energy engineering equipment
- 加強施工管控，採用碳排放更低的機械設備
To strengthen construction control and adopt machinery and equipment with lower carbon emissions
- 加強生產過程管控，降低各環節、各流程能源消耗
To strengthen production process control and reduce energy consumption in all links and processes
- 生產與施工現場使用天然氣替代煤炭
The use of natural gas instead of coal in production and construction sites
- 推廣鋁應用
To promote aluminum material

辦公及物業

Office and Property

- 推廣使用 LED 燈
To promote the use of LED lights
- 公共區域照明設備採用聲光控制，節約電能
Lighting equipment in public area uses light controlled by sound or light to save energy
- 採用更集約的空調系統，合理控制空調運作時間及溫度
To adopt more intensive air-conditioning system to reasonably control the operating time and temperature
- 路燈等外部區域夜間照明，採用太陽能產品替代
Street lights in other external areas are using solar products
- 推廣綠色辦公，關閉非必要照明、排風、顯示器、採光燈等
To promote green office, turn off non-essential lighting, ventilation, displays, etc.



長沙院助力湖南黃花國際機場降碳減排獲認可

案例

Cinf assisted Hunan Huanghua International Airport to reduce carbon emissions

Case

在 2020 年 9 月舉辦的中國（湖南）國際綠色發展博覽會上，長沙院為湖南黃花國際機場設計的“冷熱電三聯供能源站”項目被湖南省發改委評為節能改造典型案例，並特別提出表彰。

2010 年長沙院為湖南黃花國際機場設計冷熱電三聯供能源站，並於 2011 年 7 月投入正式運營。該項目是湖南省第一個三聯供分散式能源項目，也是全國分散式能源示範項目。投入使用 9 年來，能源站運行良好，不僅為黃花國際機場節省能源費用和運營成本，還充分發揮分散式能源“削峰填穀”的作用，符合用電安全以及天然氣發展方向，為湖南省能源可持續發展和“兩型社會”建設做出有益探索和良好示範。

冷熱電三聯供系統，通過以天然氣為燃料帶動燃氣發電機，產生電力供機場使用，系統發電後排出的餘熱，通過餘熱回收利用設備，供機場冬天採暖、夏天製冷。同時，三聯供系統不需要建設大電網進行遠距離、高壓或超高壓輸送，可減少線損，節省輸配電建設費用。

At the China (Hunan) International Green Development Expo held in September 2020, the "Triple Energy Station Integrating Cooling, Heating and Power" project designed by Cinf for Huanghua International Airport was highly recognized as an energy-saving renovation case by the Hunan Provincial Development and Reform Commission.

In 2010, Cinf designed a distributed energy resource, combined holding hinting on the power (DER/CCHP) for Huanghua International Airport, which was put into operation in July 2011. This project is the first DER/CCHP in Hunan Province, and it is also a national DER/CCHP project. After being put into use for 9 years, the energy station has been running well, not only saving energy and operating costs for Huanghua International Airport, but also giving full play to the role of this technology in "peak cut", in line with electricity safety and natural gas development. This project is a useful explorations and good demonstrations for the sustainable development of Hunan.

The DER/CCHP system uses natural gas as a fuel to drive a gas generator to generate electricity for the airport. The waste heat discharged is used by waste heat recovery equipment to provide the airport for air-conditioning. At the same time, the DER/CCHP does not need to build a large power grid for long-distance, high-voltage or ultra-high-voltage transmission, which can reduce line losses and save transmission and distribution construction cost.

降低環境影響 Reduce Environmental Impact

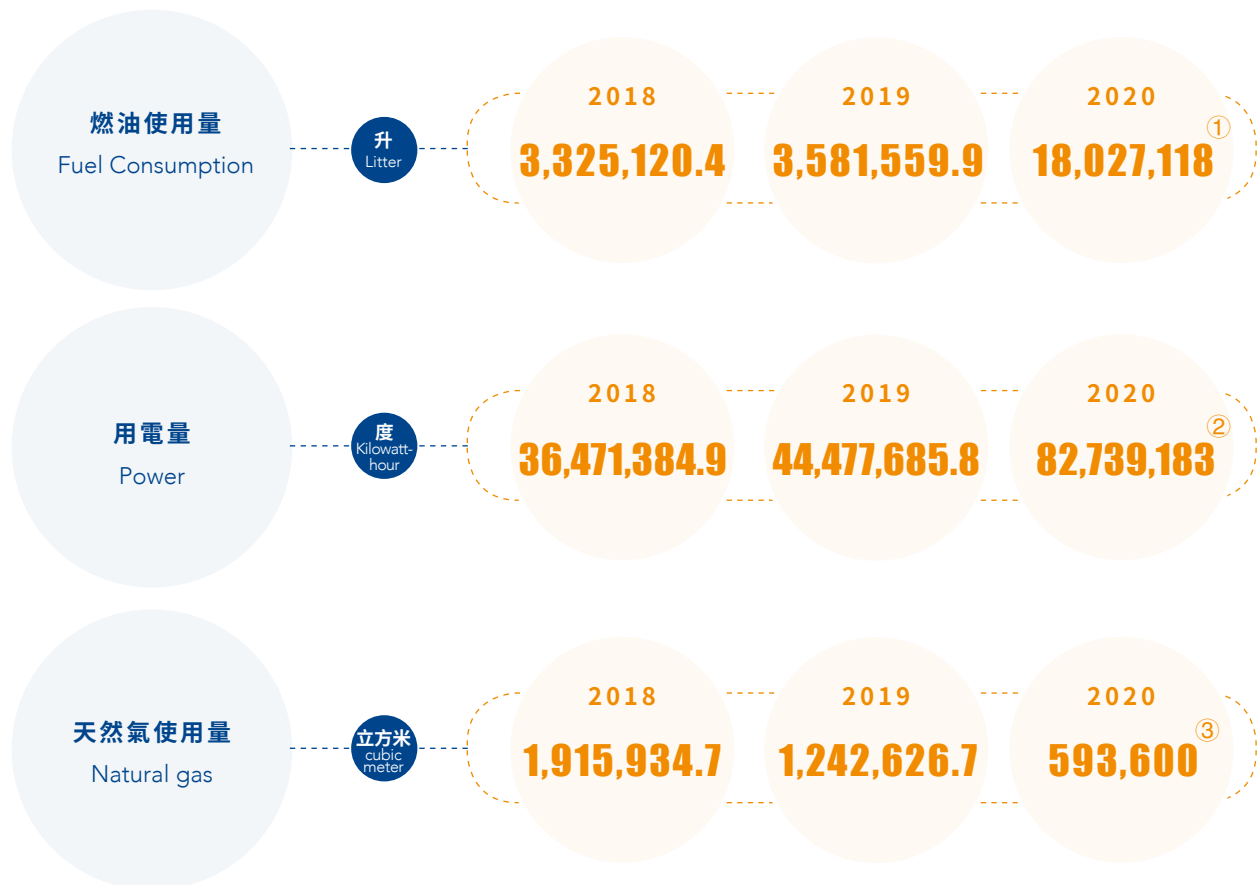
中鋁國際嚴格遵循《中華人民共和國環境保護法》《中華人民共和國大氣污染防治法》《中華人民共和國水污染防治法》《中華人民共和國固體廢棄物污染環境防治法》《中華人民共和國環境噪聲污染防治法》《中華人民共和國清潔生產促進法》及項目所在運營地的環保法律、法規及標準。公司嚴格內部管理，制定《QHS 程序文件》《QHSE 管理體系手冊》，堅持 HSE 體系及中鋁集團 CAHSE 體系並軌運行，對環境管理進行持續監督。2020 年，中鋁國際未發生較大及以上突發性環境事件。

節約能源是中鋁國際落實科學發展觀、踐行綠色發展的根本要求。中鋁國際重視科技創新，實施源頭節能，各個設計企業在設計諮詢項目中嚴格遵守國家有關法律法規，嚴格執行國家產業政策和國家、行業技術規定，精心設計，為企業生產創造良好的節能條件。加強項目一線能源節約，積極推廣新材料、新工藝，合理安排施工工序，加強材料的循環利用，減少原材料的浪費與能源的消耗。加強節能教育宣傳，組織企業開展“節能宣傳周及環保日”活動，營造節能降碳的濃厚氛圍，提高廣大員工節能意識。2020 年，中鋁國際未發生節能違法違規事件。

CHALIECO always strictly complies with the Environmental Protection Law of the People's Republic of China, the Air Pollution Prevention and Control Law of the People's Republic of China, the Water Pollution Prevention and Control Law of the People's Republic of China, the Law of the People's Republic of China on the Prevention and Control of Solid Waste Pollution, and the Environmental Noise Pollution of the People's Republic of China. Prevention and Control Law, Cleaner Production Promotion Law of the People's Republic of China and other environmental protection laws, regulations and standards of the place where the project is located. With strict internal management, the company has formulated "QHS Procedure Documents" and "QHSE Management System Manual". Adhering to the concurrent operation of the HSE system and Chinalco's CAHSE system, we have continuously supervised environmental management. In 2020, CHALIECO did not have any major or more sudden environmental incidents.

Energy conservation is the fundamental requirement for CHALIECO to implement the scientific development concept and practice green development. CHALIECO attaches great importance to technological innovation and implements source energy conservation. In design consulting projects, all design companies strictly abide by relevant national laws and regulations, strictly implement national industrial policies and technical regulations to create good energy-saving conditions for enterprise production. To strengthen the energy conservation of the project, we actively promote new materials and new processes, rationally arrange construction procedures, strengthen the recycling of materials, and reduce the waste of raw materials and energy consumption. To raise energy conservation awareness, the company has carried out "Energy Conservation Publicity Week and Environmental Protection Day" activities to create a strong culture for energy conservation and carbon reduction. In 2020, CHALIECO had no violations of energy-saving laws and regulations.

中鋁國際 2018-2020 年能源消耗情況 CHALIECO's energy consumption in 2018-2020



① ② ③ 2020 年，中鋁國際重新檢視和規範了燃油使用量、用電量、天然氣使用量的資料統計口徑，並啟用了線上填報系統，此前資料不具有可比性。

In 2020, CHALIECO re-examined and standardized the The data statistics of fuel consumption, power and natural gas, and launched an online reporting system. The previous data were not comparable.

環保治理業務 Environmental Governance

中鋁國際深耕類壤土基質復綠、邊坡復綠等環境治理項目領域，積極開拓綠色技術研發、綠色勘查施工、綠色運行管理、綠色項目開發的生態環保新業務領域，為業主提供綠色方案。

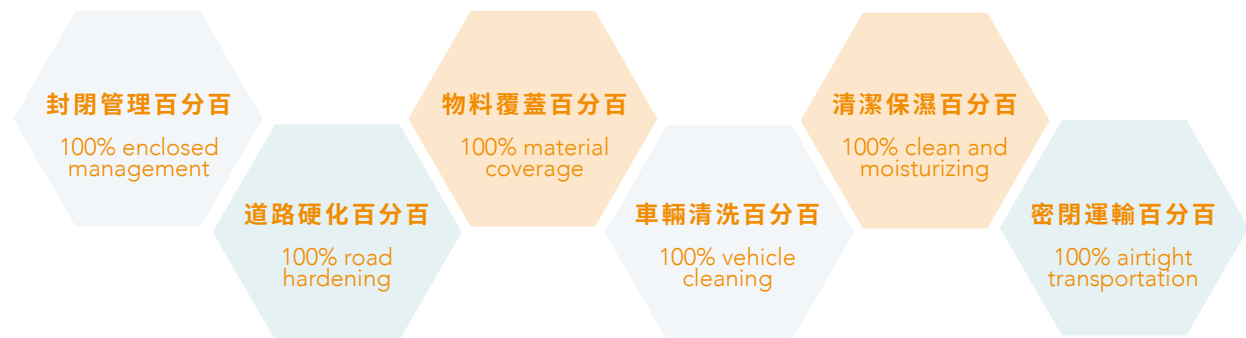
CHALIECO has actively developed Simulate Loam Substrate (SLS) and Mine Simulate Loam to promote green technology R&D, green survey construction, green operation, and green project development, providing green solutions to clients.

綠色施工 Green Construction

中鋁國際加強工程項目施工管理，廣泛推行文明施工、綠色施工。在節地、節水、節能、節材方面，做出詳細規定，規範項目現場揚塵、噪音、廢棄物及污水排放；提出項目施工“六個百分百”目標，確保項目施工對環境的影響降到最低。

CHALIECO has strengthened construction management of engineering projects, and extensively promoted green construction. In terms of saving land, water, energy and material, detailed regulations have been made to regulate the discharge of dust, noise, waste and sewage on the project site. The company also puts forward the goal of "six-100%" for project construction to ensure that the impact of project construction on the environment is minimized.

中鋁國際項目施工“六個百分百”目標 "six-100%" standard of project site



廢棄物管理 Waste Management

中鋁國際制定《環境保護管理規定》《固體廢棄物管理規定》《粉塵和毒物管理規定》等制度，對施工過程中產生的廢沙、渣土、鋼筋、廢料等廢棄物處置方法做出明確規定，並交由分包商 / 承包商進行妥善處置；對危險廢棄物進行統一收集後，交由環境保護部門或具備有資質的第三方機構進行妥善處置，以減少對生態環境造成的影響。

To cope with the waste generated by engineering projects, CHALIECO has formulated the "Environmental Protection Management Regulations", "Solid Waste Management Regulations", and "Dust and Poison Management Regulations" to deal with waste sand, muck, steel bars, waste materials, etc. According to these regulations, waste disposal shall be handed over to the subcontractor/contractor for proper disposal. After the hazardous wastes are collected uniformly, they are handed over to the environmental protection department or a qualified third-party organization in order to reduce the impact to the ecological environment.

中鋁國際 2018-2020 年固體廢棄物總量情況 CHAIECO's total amount of solid waste in 2018-2020



水資源利用 Water Resource Utilization

中鋁國際制定《工程項目施工現場用水管理規定》，對施工現場水資源使用和生產生活污水排放做出規定，降低水資源消耗，清潔排放廢水，避免水資源污染。

CHALIECO has formulated the "Regulations on Water Management at Construction Sites of Engineering Projects", which stipulates the use of water resources and the discharge of sewage at construction sites to reduce water consumption and avoid water pollution.

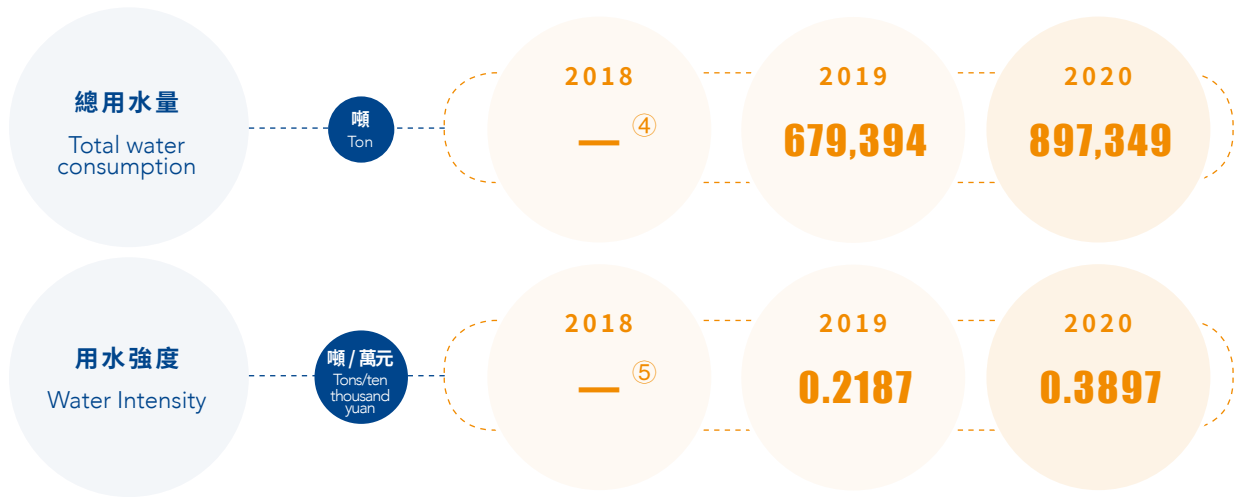
項目施工節水做法 Water Saving Practices

- 施工現場安裝雨水收集系統，用於植被灌溉、清洗車輛等，降低新鮮水使用量
Installation of rainwater collection system on the construction site for vegetation irrigation, washing vehicles, etc., to reduce the consumption of fresh water
- 聯通用水環節，注重循環利用，減少污水排放
Integrating water links, paying attention to recycling, and reducing sewage discharge
- 安裝節水設備，降低水資源使用
Installation of water-saving equipment to reduce water usage

項目施工廢水合規排放 Wastewater Discharge Compliance

- 施工現場設置排水溝渠、沉澱池等，收集污水及泥漿，並進行沉降處理，達標後排入市政污水管網系統，嚴格避免污水滲入自然水源造成污染
Setting up drainage ditches, sedimentation tanks, etc. on the construction site to collect sewage and mud, and perform settlement treatment, and discharge it into the municipal sewage pipe network system after reaching the standard, strictly avoiding sewage infiltration into natural water sources and causing pollution
- 酸度較高的渠道洗液委託有資質的污水處理站處理
The pipeline washing lotion with higher acidity is entrusted to a qualified sewage treatment station for treatment

中鋁國際 2018-2020 年水資源消耗情況 CHALIECO's total amount of water in 2018-2020



④ ⑤ 2019 年，中鋁國際重新檢視和規範了用水量與廢水排放量的資料統計口徑，並啟用了線上填報系統，此前資料不具有可比性。
In 2019, CHALIECO re-examined and standardized the data statistics of water consumption and wastewater discharge, and launched an online reporting system. The previous data were not comparable.

推行環保技術 Promote Environmental Protection Technology

隨著我國環境要求和標準的提升，礦區高效開採、工廠清潔冶煉、排放物回收利用、生態治理等領域，為中鋁國際的發展帶來了新的機遇。作為有色行業的工程技術龍頭企業，中鋁國際積極拓展環保技術研究與推廣，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、金屬回收率提升、礦區自動探測、低品位鋁土礦高效利用等領域展開技術研發，為承接項目工程奠定基礎。同時，我們對環保關鍵裝備做出深入分析和研究，從設計源頭出發，為項目提供更清潔、更高效、更綠色的環境解決方案。

2020 年，長勘院拓展環保與生態修復治理領域，承接郴州臨武縣、岳陽臨湘市、湖北黃石市等在內的一批修復工程項目。長沙院牽頭承擔的國家重點研發計畫項目《面向有色金屬冶煉流程精細管控的網路協同製造關鍵技術與平臺研發》成為工信部綠色製造系統解決方案供應商項目。

With the improvement of China's environmental requirements and standards, high-efficiency in mining areas, clean smelting of factories, recycling of emissions, and ecological governance have brought new opportunities for the development of CHALIECO. As a leading engineering technology company in the non-ferrous industry, CHALIECO actively expands the research and promotion of environmental protection technology, focusing on energy efficiency improvement, waste gas treatment, pollutant control and treatment, metal recovery rate improvement, automatic mining area detection, and efficient use of low-grade bauxite. With advanced technology and experience in China, the company has laid the foundation for undertaking project engineering. At the same time, we have made in-depth analysis and research on key environmental protection equipment, starting from the design source, and providing cleaner, more efficient and greener environmental solutions for the project.

In 2020, Changkan Institute expanded ecological restoration application, and undertook a number of restoration projects in Linwu County of Chenzhou, Linxiang City of Yueyang, and Huangshi City of Hubei. The National Key R&D Project "Key Technology and Platform R&D for Network Collaborative Manufacturing for Fine Control of Non-ferrous Metal Smelting Process" led by Cinf has become a green manufacturing solution project of the Ministry of Industry and Information Technology.

中鋁國際有色領域一流環保技術（例舉）

Some of the first-class environmental technology in the field of nonferrous metals

<p>瀋陽院 Sami</p>	<p>蓄熱式焚燒爐（ROT）技術 Regenerative thermal oxidizer (RTO) technology</p>	<p>治理炭素生產過程中的有機廢氣 Treatment of waste gas in the carbon production process</p>
<p>長沙院 Cinf</p>	<p>濕法冶煉工藝 Hydrometallurgy process</p>	<p>解決銅冶煉行業二氧化硫排放問題 Reducing sulfur dioxide emissions in the copper smelting industry</p>
<p>長沙院 Cinf</p>	<p>鉛陽極泥處理新技術 New technology of lead anode slime treatment</p>	<p>提高金屬回收率的同時減少排放、節約能耗 While increasing the metal recovery rate reducing emissions and save energy consumption</p>
<p>長沙院 Cinf</p>	<p>RDP 全過程一體化精準協同膏體充填技術 RDP full-process integration, precise and collaborative paste filling technology</p>	<p>提高礦山填充實驗室資料準確性，提供工藝設計標準方法與平臺，助力全流程智能化管控，為礦山綠色高質量發展提供技術支撐 Improving the accuracy of mine filling laboratory data, providing standard methods for process design and platforms, helping the entire process of intelligent management and control, and providing technical support for the green and high-quality development of mines</p>
<p>長沙院 Cinf</p>	<p>富氧粉煤噴吹熔池熔煉技術和裝備研究 Oxygen-enriched pulverized coal injection molten pool smelting technology and equipment</p>	<p>提升鉛系統還原爐生產指標、降低渣含鉛、煤耗、氧耗、勞動強度 Improving the production indicator of the reduction furnace of the lead system, reducing the lead content of the slag, coal consumption, oxygen consumption, and labor intensity</p>
<p>長沙院 Cinf</p>	<p>銅冶煉企業廢水“零排放”關鍵技術及應用 Key Technologies and Application of "Zero Discharge" of Wastewater in Copper Smelting Enterprises</p>	<p>實現銅冶煉廢水資源化、無害化經濟型“零排放” Ensuring wastewater from copper smelting harmless and "zero discharge"</p>
<p>長沙院 Cinf</p>	<p>鋅浸出渣高值化清潔冶煉技術 High-value clean smelting technology for zinc leaching residue</p>	<p>實現危廢渣——鋅浸出渣中有價金屬的富集和綜合回收 Gathering valuable metals and comprehensive recovery in the hazardous waste residue-zinc leaching residue</p>
<p>長勘院 Changkan Institute</p>	<p>有色行業礦渣堆場生態修復技術研究和推廣 Research and promotion of ecological restoration technology for slag storage yard in non-ferrous industry</p>	<p>基於自然的解決方案，實現生態修復 已在河南中州鋁業的赤泥堆場開展現場試驗，現場植物長勢良好 Nature-based solutions to achieve ecological restoration The field test has been carried out in the red mud disposal site of Henan Zhongzhou Aluminum Industry, and the plants on the spot are growing well</p>
<p>長勘院 Changkan Institute</p>	<p>礦山地下採空區無人自動探測技術 Unmanned automatic detection technology for underground goaf of mine</p>	<p>整合礦產資源、避免礦山環境惡化和資源浪費 Integrating mineral resources to avoid deterioration of the mine environment and waste of resources</p>

鋁應用推廣 Aluminum Application Promotion

鋁製品的可回收性、輕巧性、抗腐蝕性，在節約能耗、降低溫室氣體排放方面具有獨特的重要性。從環保角度長遠來看，鋁應用將在建築業、交通運輸業等領域具有更為廣泛的前景，也將具有更為顯著的社會效益。中鋁國際推進鋁精深加工價值鏈高端轉型，加大創新力度，開展工程用鋁，探索新的市場領域，打造核心競爭力。我們以市場和用戶需求為導向，在建築用鋁、交通用鋁，電信產品、工業設備、基礎設施等領域開發鋁合金產品，推廣實施鋁應用。

2020 年，中鋁國際工程用鋁業務和市場實現新的拓展，建成雲南鋁應用產業基地，中標全國首例大直徑異形鋁結構建築——四川成都建川綜合陳列館鋁合金網殼結構建設項目；承建的 3 座鋁合金天橋亮相內蒙古赤峰市，其中 1 座為目前國內單體規模、原材料用量最大的鋁合金天橋。

九冶承建西安天穀六路人行天橋順利開通
Xi'anTiangu No.6 pedestrian overpass constructed by 9th Metallurgical Construction opened smoothly



The recyclability, lightness, and corrosion resistance of aluminum products are of unique importance for saving energy and reducing greenhouse gas emissions. From a long-term perspective of environmental protection, aluminum applications will have broader prospects in the construction industry, transportation and other fields, and will also have more significant social benefits. CHALIECO is advancing the high-end transformation of the aluminum intensive processing value chain, increasing innovation, launching engineering aluminum, exploring new market areas, and building core competitiveness. Guided by market and user needs, we develop aluminum alloy products and promote the implementation of aluminum applications in areas such as construction, transportation, telecommunications, industrial equipment, and infrastructure.

In 2020, CHALIECO's engineering aluminum business and market has achieved new expansion, building an aluminum application industry base in Yunnan, and winning the bid for the country's first large-diameter special-shaped aluminum structure building-Aluminum alloy reticulated shell of Comprehensive Exhibition Hall in Chengdu, Sichuan. The three cross-street aluminum alloy flyovers undertaken by our company appeared on the streets of Chifeng City, Inner Mongolia. One of them is the aluminum alloy flyover with the largest monomer scale and the largest amount of raw materials in China.



03



中鋁國際在穩定開展自身業務經營的同時，主動承擔企業社會責任，攜手利益相關方共建和諧社會。公司維護員工權益，搭建員工發展平臺，助力員工成長；倡導志願精神，積極參與精準扶貧，支援社會公益事業，服務、奉獻社會；拓展海外項目，注重社區責任履行，助推當地經濟發展，創造共贏價值。

While stably carrying out its own business operations, CHALIECO also actively assumes corporate social responsibilities and works with stakeholders to build a harmonious society. The company safeguards the rights and interests of employees, builds an employee development platform, and helps them grow. Advocating volunteerism, we actively participate in targeted poverty alleviation to support social welfare, serve and contribute to society. Oversea entities focus on fulfilling community responsibilities, boosting local economic development, and creating win-win value.

幸福之“鋁” 共用美好

"Aluminum" with Happiness
to Share Prosperity



- 員工關愛 Employee Care
- 志願服務 Volunteer Service
- 精準扶貧 Targeted Poverty Alleviation
- 防疫抗疫 Fight against COVID-19
- 境外履責 Performing Duties Abroad

員工關愛 Employee Care

中鋁國際 2020 年度員工構成情況 The composition of CHALIECO's employees in 2020

類別 Category	員工人數 (人) Number of employees
按員工類型劃分僱傭人員總數 Characterized by employee type	勞動合同員工 Contract employees 14,633
按年齡結構劃分的員工數量 Characterized by age	≥ 55 歲 ≥ 55 years old 1,204
	41-54 歲 41-54 years old 5,400
	31-40 歲 31-40 years old 4,512
	≤ 30 歲 ≤ 30 years old 3,517
按職稱劃分的員工數量 Characterized by professional title	高級職稱 Senior title 2,214
	中級職稱 Intermediate title 3,209
	初級職稱 Junior title 2,931
按性別劃分的員工數量 Characterized by gender	男 male 11,239
	女 Female 3,394
按地區劃分的員工數量 Characterized by region	中國內陸 Mainland China 14,633
	港澳臺 Hong Kong, Macau and Taiwan 0
	國外 foreign 0

中鋁國際 2020 年度員工流失情況 Employee turnover in 2020

類別 Category	離職員工人數 (人) Number of the resigned	流失率 (%) Churn rate (%)
按年齡結構劃分的離職員工人數 Number of the turnover by age	≥ 55 歲 ≥ 55 years old 7	0.04
	41-55 歲 41-55 years old 73	0.5
	31-40 歲 31-40 years old 205	1.4
	20-30 歲 20-30 years old 313	2.14
按性別劃分的離職員工人數 Number of the turnover by gender	男 male 478	3.27
	女 Female 120	0.82
按地區劃分的離職員工人數 Number of the turnover by region	中國內陸 Mainland China 598	4.1

維護員工權益 Safeguard the rights and interests of employees

中鋁國際堅持“以人為本”，尊重並維護職工合法權益，制定《中鋁國際總部員工招聘管理辦法》《中鋁國際勞動合同管理辦法》等制度，構建完善的員工權益保護體系，切實保障員工合法權益。公司堅決杜絕強制勞動，保障平等就業，落實民族政策，嚴禁使用童工。截至報告期末，中鋁國際共有在職員工 14,633 人。

在薪酬待遇方面，中鋁國際為員工提供合理的薪資與福利，依法為員工繳納社會保險和公積金、提供帶薪休假，落實病假制度等，並為員工提供體檢、節日慰問等福利待遇。中鋁國際還鼓勵有條件的下屬企業為員工繳納企業年金、補充醫療險。

民主管理方面，中鋁國際完善以職工代表大會為基本形式的企業民主管理體系，保障員工的知情權、建議權、參與權和監督權。



中鋁國際共有
在職員工

14,633人

Adhering to the "people-oriented" principle, CHALIECO respects and protects the legitimate rights and interests of employees, and formulates the "CHALIECO Headquarters Staff Recruitment Management Measures", "CHALIECO Labor Contract Management Measures" and other systems to build a complete employee rights protection system. The company resolutely eliminates forced labor, guarantees equal employment, implements ethnic policies, and strictly prohibits the use of child labor. As of the end of the reporting period, CHALIECO had 14,621 employees.

In terms of remuneration, CHALIECO provides employees with reasonable salary and benefits, pays social insurance and provident funds for employees in accordance with the law, provides paid leave, implements the sick leave system, etc., and provides employees with benefits such as medical examinations. CHALIECO also encourages subsidiaries to pay corporate annuities and supplementary medical insurance for their employees.

In terms of democratic management, CHALIECO has perfected the corporate democratic management system based on the workers' congress to protect the employees' right.



“中鋁國際杯”首屆工程技術職業技能大賽

Chalico Cup the first engineering technology vocational skills competition

培育員工成長 Career Growth

中鋁國際為員工搭建職業發展平臺，滿足員工提升素質、挖掘潛能的需要；建立員工晉升機制，為員工搭建發展多元通道；完善人才激勵機制，激勵員工成長成才。

2020 年，中鋁國際組織 24 人參加中鋁集團“合金計畫”、“鋒刃計畫”、“飛躍計畫”培訓班；組織人員參加中鋁集團班組長綜合管理技能培訓、綜合辦公技能比武、首屆“中鋁國際杯”工程技術職業技能大賽、“中鋁國際杯”中鋁集團第四屆創新創意大賽、“安全、乾淨”班組競賽、本部新員工入職培訓等活動，提升員工素質和能力。開辦“中鋁國際講堂”，舉辦安全生產管理、人力資源、法務風控、市場開發、辦公技能、財務管理等 6 個專題講堂，圍繞公司生產經營改革發展的相關問題，開展業務交流、研討培訓。2020 年，中鋁國際累計培訓 12,546 人次。

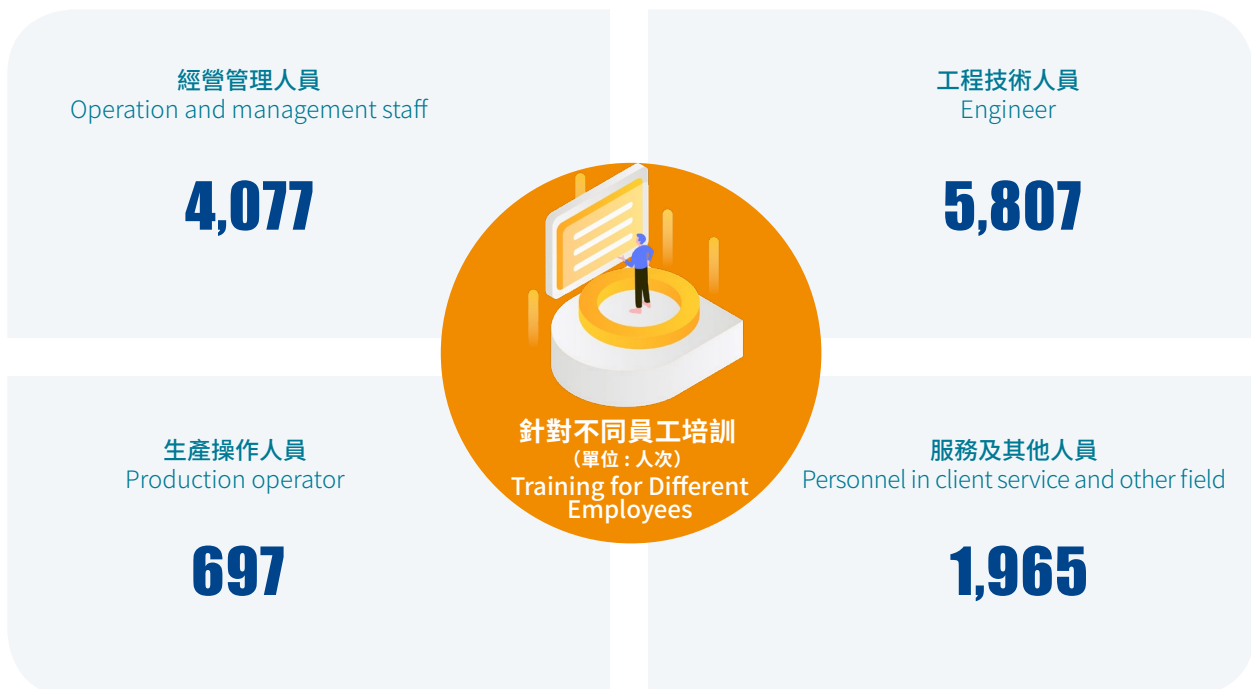


中鋁國際累計
培訓

12,546 人次

CHALIECO builds a career development platform for employees to meet the needs to improve their quality and tap their potential; establishes an employee promotion mechanism and builds a diversified channel for employee development; improves the talent incentive mechanism to encourage employees to grow.

In 2020, 24 employees participated in the training courses of "Alloy Plan", "Edge Plan" and "Flying Plan". Many employees also participated in the comprehensive management skills training for team leaders of CHINALCO, comprehensive office skills competition. Besides, the first "CHALIECO Cup" Engineering Skills Competition, the 4th "CHALIECO Cup" innovation and creativity competition, "Safety Work" competitions and induction training for new employees have improved the quality and abilities of employees. "China Aluminum International Lecture Hall", as well as other six thematic lectures on safety management, human resources, legal and risk control, market development, office skills, and financial management provided opportunities for business exchanges, seminars and training on issues related to the company's production and operation reform and development. In 2020, CHALIECO has trained 12,546 people in total.



關懷員工生活 Caring for Employees' Lives

中鋁國際深入瞭解員工工作和生活要求，真情幫扶困難員工，組織開展豐富多彩的員工活動，提升員工的幸福指數，增強企業凝聚力和向心力。

CHALIECO has a deep understanding of employees' work and life demands, sincerely helps employees in need, organizes a variety of employee activities, improves employees' happiness index, and enhances corporate cohesion and centripetal force.

關心關愛員工：在元旦春節、中秋等節日期間組織慰問一線員工、困難職工，為員工發放節日慰問品、生日蛋糕券等，讓員工感受到企業的溫暖。2020年疫情期間，公司本部建立員工理髮室，為員工解決疫情期間的理髮難題。

Caring for employees: visiting frontline employees and employees in difficulties during New Year's Day, Spring Festival, Mid-Autumn Festival and other festivals, and presenting employees with holiday gifts and birthday cake. During the 2020 pandemic, the company's headquarters established a barber shop for employees to solve the problem of haircuts.

困難員工幫扶：公司建立困難員工幫扶長效機制，規範困難幫扶專項資金管理，明確救助範圍、幫扶額度等，給予困難員工更多關心和慰問，幫助他們解決實際困難。

Assistance to employees in need: The company establishes a long-term mechanism for assistance to employees in need, regulates the management of special funds for assistance in difficulties, clarifies the scope of assistance and the amount of assistance, etc., to give more care and condolences to employees in need, and help them solve practical difficulties. In 2020, CHALIECO invested a total of 761,800 yuan in employee assistance funds.



2020年，中鋁國際共投入員工幫扶資金

76.18萬元

多元文化活動：公司持續推進職工之家建設，組織開展員工文體活動，豐富員工業餘生活。

Multicultural activities: The company continues to organizes cultural and sports activities for employees, and enriches their spare-time lives.



2020 年 6 月，中鋁國際講堂首期開講
In June 2020, the first session of the CHALIECO Lecture Hall initiated.



長沙院安排專車接送員工上班
Cinf arranged shuttle bus for employees



中鋁山東工程技術有限公司組織開展職工運動會
Organize and carry out employee sports meeting

志願服務 Volunteer Service

中鋁國際弘揚“奉獻、友愛、互助、進步”的志願服務精神，鼓勵員工參與志願服務，組織志願者服務隊伍，深入社區開展學雷鋒志願服務活動，培育“我為人人、人人為我”的良好風尚。2020年，中鋁國際組織志願者活動116次，累計活動1,191小時。

CHALIECO promotes the spirit of volunteer service of "dedication, friendship, mutual assistance, and progress", encourages employees to participate in voluntary service, organizes volunteer service teams, goes deep into the community to carry out volunteer service activities. In 2020, CHALIECO organized 116 volunteer activities, with a total of 1,191 activity hours.



貴陽院學雷鋒

Learn from Leifeng, volunteers from Gami participated in voluntary service



山東工程學雷鋒

Volunteers from Shandong Engineering Technology participated in voluntary service

精准扶貧 Targeted Poverty Alleviation

中鋁國際及下屬企業深入貫徹落實黨中央、國務院脫貧攻堅決策部署，按照“統籌規劃、突出重點、盡力而為、量力而行”的原則，通過定點幫扶、基礎設施建設、愛心捐贈、消費貧困地區農特產品等方式，積極參與精准扶貧。中鋁國際派駐村幹部，立足幫扶地區實際需要，在基礎設施建設、產業支援、教育、消費、就業等領域，積極籌畫、展開幫扶，助力貧困村脫貧摘帽。

CHALIECO and its subsidiaries have thoroughly implemented poverty alleviation and deployment, in accordance with the principle of "planning overall, highlighting key points, doing their best, and acting within their capabilities" through targeted assistance, infrastructure construction, donations, consuming agricultural products in poverty-stricken areas to participate in targeted poverty alleviation. CHALIECO dispatched cadres to villages, based on the actual needs of the region, and actively planned and carried out assistance in the fields of infrastructure construction, industrial support, education, consumption, and employment to help poor villages get rid of poverty.

中鋁國際 2020 年精准扶貧投入 CHALIECO's Investment in Targeted Poverty Alleviation in 2020



2020 年，中色科技、長勘院、長沙院和貴陽院 4 家二級企業定點幫扶的 4 個村已全部實現貧困村摘帽，建文件立卡貧困戶 408 戶 1,581 人已全部實現脫貧。

In 2020, all of villages supported by the four secondary enterprises of CHALIECO were lifted out of poverty, which benefited 408 poor households and 1,581 people.

中鋁國際定點幫扶工作地區 CHALIECO's designated areas for assistance



長勘院愛心助學
Changkan institute helping poor students

“脫貧摘帽不是終點，而是新生活、新奮鬥的起點”，公司及下屬企業將繼續鞏固脫貧成效，確保達到戶有致富路，村有特色產業，群眾收入增加，集體經濟不斷壯大，全面推進鄉村振興。

Getting rid of poverty is not the end, but the starting point of new life and new struggle. The company and its subordinate enterprises will continue to consolidate the effect of getting rid of poverty, ensure that every household has away to get rich, the village has characteristic industries, the income of the masses increases, and the collective economy continues to grow comprehensively promote rural revitalization.



長沙院扶貧點教育基金啟動儀式

Launching Ceremony of Cinf Poverty Alleviation Education Fund

中鋁國際精準扶貧榮譽

Honor of CHALIECO for Poverty Alleviation



中色科技取得 2020 年洛陽智能扶貧系統記錄入質量比賽團體第一名

CNPT won the first prize of Team Competition in Louyang Smart Poverty Alleviation System Data Entry Quality Competition

中色科技駐村第一書記盧廷革同志榮獲“新安縣脫貧攻堅貢獻獎”

Lu Tingge, the first secretary from CNPT in the village, won the "Poverty Alleviation Contribution Award" of Xin'an County

貴陽院被評為全州優秀幫扶企業、全縣優秀幫扶企業

Gami was rated as excellent helping enterprises in Qiandongnan Miao and Dong Autonomous Prefecture

貴陽院全資子公司貴陽新宇建設監理有限公司被評為全縣優秀幫扶單位

Guiyang Xinyu Construction Supervision Co.,Ltd, Gami's wholly owned subsidiary, was rated as the Shibing County's outstanding aid units

貴陽院駐村第一書記李彤同志榮獲貴州省優秀第一書記、全州優秀援黔東南幹部

Li Tong, the first secretary from the Gami in the village, was awarded the outstanding first secretary of Guizhou Province and the outstanding cadre in Qiandongnan Miao and Dong Autonomous Prefecture

長勘院扶貧工作隊在湖南省委組織部組織的年度考核評定中評定為優秀等次

Poverty alleviation work team dispatched by Changkan Institute was highly recognized by organization department of Hunan Provincial Party committee and rated A level in the assessment



精准幫扶成效顯，拳拳真情滿金坑

案例

Targeted Poverty Alleviation in Jinkeng

Case

貴州省施秉縣牛大場鎮金坑村，位於大山深處，由於惡劣的自然環境，落後的基礎設施，成為鎮裡唯一的二類貧困村，全村轄 14 個村民組 596 戶 2,021 人，有貧困人口 148 戶 566 人。

2018 年 3 月，貴陽院選派李彤赴金坑村落實扶貧工作。在對村情進行深入瞭解後，李彤決定緊緊圍繞發展金坑村經濟建設這一中心，強化班子建設、基礎建設、文化建設、民生建設，有效實施結對幫扶計畫，幫助貧困戶脫貧。

貴陽院與村兩委一致支持這一幫扶思路。在李彤的協調配合組織下，貴陽院為金坑村投入幫扶資金（含物資、設計費等）45.5 萬元。其中，直接投入用於基礎設施 16.8 萬元、產業扶貧 3 萬元、文化教育 1 萬元、醫療衛生 1.5 萬元、賑災救濟送溫暖 3.2 萬元；幫助引進各類資金（含無償和有償）1,000 余萬元；幫助貧困戶實現勞務就業 5 人，實現勞務收入 40 余萬元。

2019 年 4 月 24 日，貴州省人民政府正式批准施秉全縣成功脫貧摘帽，貴陽院黨建扶貧點金坑村以認可度 100% 的優異成績脫貧出列。

Jinkeng Village, Niudachang Town, Shibing County, Guizhou Province, is located deep in the mountains. Due to the harsh natural environment and outdated infrastructure, it has become the only second-class poor village in the town. The whole village has 14 villager groups with 596 households and 2,021 people among which 566 people in 148 households in poverty.

In March 2018, the Gami appointed Li Tong to go to Jinkeng Village to implement poverty alleviation work. After in-depth understanding of the village situation, Li Tong decided to focus on the development of Jinkeng Village's economic construction center, strengthen team construction, infrastructure construction, cultural construction, and people's livelihood construction, and effectively implement the paired assistance program to help poor households get out of poverty.

The Gami and the two village committees unanimously supported this idea of assistance. Under the coordination of Li Tong, Gami invested 455,000 yuan in assistance funds (including materials, design fees, etc.) for Jinkeng Village. Among them, 168,000 yuan was directly invested for infrastructure, 30,000 yuan for industrial poverty alleviation, 10,000 yuan for culture and education, 15,000 yuan for medical and health care, and 32,000 yuan for disaster relief. Besides, more than 10 million yuan of various funds were introduced (including free and paid); Li Tong helped poverty-stricken households to achieve 5 labor employment, and achieved labor income of more than 400,000 yuan.

On April 24, 2019, the People's Government of Guizhou Province officially recognized that Shibings County successfully out of poverty and the Gami's Poverty Alleviation Point in Jinkeng Village was listed as an excellent achievement.



為金坑村投入
幫扶資金

45.5 萬元



幫助引進各類資
金(含有償和無償)

1,000 余萬元

防疫抗疫 Fight against COVID-19

2020 年初，新冠肺炎疫情突如其來。面對疫情嚴峻形勢，中鋁國際認真貫徹習近平總書記、李克強總理對疫情作出的重要指示精神，全面落實中鋁集團黨組關於疫情防控的要求，迅速行動、周密部署，統籌做好疫情防控和復工復產各項任務，為打贏疫情防控阻擊戰貢獻力量。

At the beginning of 2020, the Covid-19 strikes suddenly. Faced with the severe situation of the epidemic, CHALIECO earnestly implemented the spirit of the important instructions given by General Secretary Xi Jinping and Premier Li Keqiang to the epidemic, fully implemented the requirements of the Chinalco's Party on epidemic prevention and control, acted quickly and carefully deployed, and coordinated the prevention and control of the epidemic to contribute to winning the fight against the epidemic.

嚴格落實防控責任

Strictly implementing prevention and control responsibilities

疫情就是命令，防控就是責任。疫情暴發後，為確保各項工作落到實處，中鋁國際成立由主要領導掛帥、班子成員全體參加的預防新型冠狀病毒感染肺炎工作領導小組，並組建領導小組辦公室，各部門、各單位迅速回應，全面安排部署，層層壓實防控責任。結合疫情防控態勢，中鋁國際還及時組織研究各施工企業、項目部節後復工事宜，統籌開展疫情防控和經營生產工作。

The epidemic is the order, and prevention is company's responsibility. After the outbreak, in order to ensure the implementation of various tasks, CHALIECO established a leading group for the prevention of COVID-19, and established a leading group office. All departments and units responded quickly to comprehensively arrange for deployment, and layered implementation of prevention and control responsibilities. In light of the epidemic prevention and control situation, CHALIECO also promptly organized research on the resumption of work by construction companies and project departments, and coordinated the development of epidemic prevention and control and operation and production.



廣泛開展捐款捐物 Extensively carrying out donations

疫情發生後，中鋁國際所屬企業和廣大職工積極捐款捐物，支援疫情抗擊，以實際行動為疫情防控一線提供支持和保障，合計捐資捐物達到 14.59 萬元。

After the outbreak of the COVID-19, CHALIECO's subsidiaries and employees actively donated money and materials to support the fight against the epidemic, and provided support for the front line of epidemic prevention and control with practical actions. The total donations reached 145,900 yuan.

穩步推進復工復產 Steadily promoting the resumption of work

面對疫情嚴峻大考，中鋁國際直面困難，迎難而上，堅持疫情防控與復工復產“兩手抓、兩不誤”，建立三級疫情防控、復工復產管理體系，制定印發《施工現場新冠肺炎防控工作實施方案》《關於加快在建項目復工復產的指導意見》等，在防控好疫情的前提下加強生產經營組織管理，全力以赴保重點項目，分級分層抓實做細生產經營工作。同時，各企業積極結合自身優勢，開展信息化、技術化應用開發，助力安全復工復產。截至 2020 年 3 月底，公司 200 餘個項目全部復工復產，得到地方政府和媒體的廣泛關注。

Faced with the severe examination of the epidemic, CHALIECO insisted on the prevention and control of the epidemic and the resumption of production with both hands. The company established a three-level management system for epidemic prevention and control, resumption of production and production, and formulated and issued the "Implementation Plan for the Virus Prevention at Construction Sites" and "Guiding Opinions on Accelerating the Resumption of Work and Production of Projects Under Construction", etc. Under the premise of preventing and controlling the epidemic, we also strengthened the organization and management of production and operation to protect key projects, and grasp at different levels. At the same time, all branches actively combined their own advantages to carry out informatization and technological application development to help safe resumption of work and production. As of the end of March 2020, all of the company's more than 200 projects have resumed operation, which has highly recognized by local governments and the media.



山東工程信息技術中心開發 2 套外來人員疫情防控手機 APP，創新信息登記模式，滿足疫情期間企業對外來施工人員信息管控的需要，有效助力企業防疫復工

The Information Technology Center of Chalieco Shandong Engineering Technology developed 2 sets of mobile apps for epidemic control, and innovated information registration models to meet the needs of enterprises for information management and control of migrants during the epidemic, and effectively help enterprises to resume work in epidemic prevention and control



昆勘院應急研發紅外測溫儀助力復工復產

案例

The infrared thermometers by the Kunming Survey and Design Institute helps resumption of work and production Case

為做好復工後員工的安全保障，昆勘院提出“研製紅外測溫儀應急自用，全力保障疫情防控設備供應”的方案。昆勘院威海信息化分公司接到任務後，分工合作齊行動，歷時 9 天完成紅外測溫儀的設計、組裝和調試，成功研發出第一台樣機。經過與醫用測溫儀進行核驗，該紅外測溫儀總體誤差在行業標準範圍內，可用于人員日常測溫使用。

In order to ensure the safety of employees after the resumption of work, the Kunming Survey and Design Institute put forward the plan of "developing infrared thermometers for emergency use and ensuring the supply of epidemic prevention and control equipment". After receiving the task, the Weihai Information Technology Branch of the Kunming Survey and Design Institute took 9 days to complete the design, assembly and commissioning of the infrared thermometer, and successfully developed the first prototype. After verification with a medical thermometer, the overall error of the infrared thermometer is within the industry standard range and can be used for daily temperature measurement.



保障重點民生工程建設

Ensuring the construction of key livelihood projects

中鋁國際各成員企業統籌抓好疫情防控、復工復產工作，在做好重點工業項目施工的的同時，積極推進和保障重點民生工程復工。雲南推進“三區三州”扶貧攻堅的重點工程——“瀘水-騰沖”二級公路項目、河南安陽中東孟村棚改項目等一批民生工程项目，多舉措開展防疫工作，有序推進項目復工，把新冠肺炎疫情對施工進度的影響降到最低。

The member companies of CHALIECO have coordinated efforts to prevent and control the epidemic, resume operation. While doing a good job in the construction of key industrial projects, they actively promoted the resumption of key livelihood projects. Yunnan promoted a number of livelihood projects such as the "Lushui-Tengchong" secondary road project and the Zhongdongmeng Villiage shantytown renovation in Anyang, Henan, which are key projects for poverty alleviation, and carried out epidemic prevention work in an orderly manner. The resumption of the project has minimized the impact of the pandemic on the construction progress.

保障員工安全健康

Ensuring the safety and health of employees

中鋁國際切實保障員工生命安全和身心健康，建立人員台賬和個人健康文件案，嚴格實行“日報告”“零報告”制度，精準掌握員工行程動態和健康狀況；積極為員工採購發放防疫物資，開展員工心理健康疏導，宣傳普及疫情防控知識，築牢員工生命安全和身心健康防線。全年，公司近 15,000 名員工無一例感染。

CHALIECO effectively guarantees the safety and physical and mental health of employees, establishes personnel accounts and personal health files, and strictly implements the "daily report" and "zero report" system to accurately grasp the dynamics and health status of employees. By providing epidemic prevention materials for employees, carrying out employee mental health counseling, and publicizing epidemic prevention knowledge, the company built a line of medical defense for employee. Throughout the year, nearly 15,000 employees in the company, no case of infection reported.

境外履責 Performing duties abroad

中鋁國際憑藉“技術為先導”的集約發展模式，為多項海外工程提供工程設計與諮詢、工程總承包、設備供貨等服務，是世界鋁工業的主要技術供應商之一，向全球數十個國家和地區輸出技術、設備和勞務，並與國際企業、科研機構等建立起合作關係，並打造以印尼和越南為基礎的東南亞基地、以幾內亞和剛果金為基礎的非洲基地、以哈薩克和塔吉克斯坦為基礎的俄語區基地、以委內瑞拉和秘魯為基礎的美洲基地，以及以義大利維斯梅港電解鋁廠 EPS 總包項目為基礎的歐洲市場業務基地。

Relying on the intensive development model of "technology as the leader", CHALIECO provides engineering design and consulting, EPC, equipment supply and other services for a number of overseas projects, exporting technology, equipment and labor services to dozens of countries and regions, and establishing cooperative relations with international enterprises and scientific research institutions. We have built Southeast Asian bases based on Indonesia and Vietnam, African bases based on Guinea and the Democratic Republic of Congo, and Russian-speaking base based in Kazakhstan and Tajikistan, the American base based in Venezuela and Peru, and the European market business base based on the EPS turnkey project of the electrolytic aluminum plant in Italy.

境外業務拓展 Business expansion abroad

2020 年，公司以核心技術和成本優勢，實現海外市場的新突破，新簽定多個項目：

In 2020, the company has achieved new breakthroughs in overseas markets with its core technology and cost advantages, and have signed a number of new projects:

印尼年產 100 萬噸冶金級氧化鋁項目 EPC 總承包項目

1,000,000 TPA (expandable) Smelter Grade Alumina Refinery Mempawah Project

埃及年產 160 萬噸螺紋鋼項目施工總承包項目

The general contracting project for the construction of the 1,600,000 tons of rebar project in Egypt

印度氧化鋁擴建項目設計項目

Design project for alumina factory expansion in India

剛果金濕法銅鈷冶煉設計項目

Wet Process Copper Cobalt Smelting Design Project of Democratic Republic of the Congo

守望相助，共克時艱 Keep watching and help each other to overcome the difficulties together

在中國處於新冠肺炎疫情防控的關鍵時期，中鋁國際曾在海外合作夥伴的鼎力相助下，從海外採購物資，第一時間發回國內。土耳其、印尼等國合作夥伴還向公司及成員企業捐贈防疫物資。

新冠肺炎疫情向全球擴散後，部分海外合作夥伴緊缺防疫物資，中鋁國際及成員企業及時伸出援手，向委內瑞拉、印尼、義大利、法國、韓國等國相關企業捐贈口罩、防護服等防疫物資，見證中鋁國際與海外合作夥伴“守望相助、共克時艱”的患難真情。

When China is in a critical period of fighting the virus, CHALIECO has purchased some materials from overseas with the help of partners and sent them back to China as soon as possible. Partners in Turkey, Indonesia and other countries also donated some anti-epidemic materials to the company and member companies.

After the global spread of the COVID-19, some overseas partners were short of protective materials. CHALIECO and its branches gave a helping hand in time, donating masks, protective materials to relevant companies in Venezuela, Indonesia, Italy, France, South Korea and other countries. This witnessed CHALIECO and its overseas partners "helping and supporting each other and overcoming difficulties together".



義大利維斯梅電解鋁改造項目
Electrolytic Aluminum
Reconstruction Project in Italy



關注境外員工健康

Pay attention to the health of overseas employees

針對海外疫情發展實際，中鋁國際印發《關於在境外新冠肺炎疫情防控中發揮黨組織戰鬥堡壘和黨員先鋒模範作用的通知》《中鋁國際工會關於在疫情防控期間關心關愛海外員工的通知》，密切關注海外人員生命安全，積極籌備防疫物資，動態調整應急預案，為全體境外員工共 427 人購買疫情人身意外險。同時，及時為海外員工家庭送去關懷、排憂解難，解決境外員工的後顧之憂。

In response to the spread of the overseas pandemic, CHALIECO issued the "Notice on Playing the Role of Party as Fighting Fortress to Fight Against the Pandemic Overseas" and "Notice of the CHALIECO on Caring for Overseas Employees During the Period of Pandemic", paying close attention to the health of overseas personnel, actively preparing anti-epidemic supplies, dynamically adjusting emergency plans, and purchasing personal accident insurance for all 427 overseas employees. At the same time, the company supported trouble-shooting for the families of overseas employees in a timely manner, so as to solve the worries of overseas employees.



中鋁國際成員企業承建的幾內亞 Boffa 項目核心工程獲各方高度評價

案例

The core project of the Boffa project in Guinea undertaken by a member company of CHALIECO has been highly praised by all parties Case

4月6日，Boffa 項目皮帶輸送系統帶料重載聯調一次成功，標誌著中國在幾內亞投資最大鋁土礦項目全線貫通投運，也意味著中鋁國際“會戰”西非交出一份滿意答卷。

幾內亞 Boffa 鋁土礦礦山項目位於非洲幾內亞博法省博法市東北部，是中鋁集團重大海外綠地工程，備受全球鋁行業關注。項目自啟動以來，中鋁國際充分發揮技術優勢，從 Boffa 項目決策、談判再到建成，全過程參與諮詢、設計、施工等工作。

2016年8月，長沙院組建 Boffa 項目組，開展幾內亞 Boffa 鋁土礦資源開發的概念設計研究，實施項目資源勘查，編制項目可研報告，為中鋁集團決策、幾內亞政府審查及礦業協定談判提供可靠支援。基於前期的出色表現，長沙院隨即承擔了 Boffa 項目總體設計任務，派出人員 12 批次赴現場進行建設、施工、試車、投產等方面的技術服務。

項目試生產建設期間，六冶、十二冶項目部克服當地沒有用電用水等基礎條件、物資設備和施工材料不足等難題，保證生活區按時達到入住條件。在中鋁國際成員企業的積極努力下，Boffa 項目接連創造斜拉橋 303 天合龍，23 公里長距離越野皮帶 246 天完成土建施工，162 天完成鋼結構安裝等施工佳績，得到中國駐幾內亞大使、業主方的高度認可。

在項目建設期間，中鋁國際還通過幫助當地完善道路、橋樑交通條件，開展本地採購、招聘當地人員務工，租賃當地設備的方式，助力礦區周邊社區經濟發展。

On April 6th, the belt conveyor system of the Boffa project was successfully adjusted with heavy loads, marking the completion of China's investment in Guinea's largest bauxite project. It also means that CHALIECO's "exploration" in West Africa got great recognition.

The Boffa bauxite mine project in Guinea is located in the northeast of Boffa City, Bofa Province, Guinea, Africa. It is a major overseas greenfield project of Chinalco Group and has attracted the attention of the global aluminum industry. Since the project was launched, CHALIECO has given full play to its technological advantages, from decision-making, negotiation to completion of the Boffa project, and participating in consultation, design, and construction throughout the entire process.

In August 2016, Cinf formed the Boffa project team to carry out conceptual design research on the development of Boffa bauxite resources in Guinea, implement project resource surveys, prepare project feasibility reports, provide reliable support for Chinalco and the Guinea government. Based on the outstanding performance in the early stage, Cinf immediately undertook the overall design task of the Boffa project and sent 12 batches of personnel to the site for technical services such as construction, construction, test run, and production.

During the trial production and construction of the project, the Project Department of Sixth Metallurgical Company and China Nonferrous Metals Industry's 12th Metallurgical Construction Co., Ltd. overcame the obstacles such as lack of electricity and water, as well as the shortage of materials, equipment and construction materials to ensure living conditions on time. With the efforts of the member companies of CHALIECO, the Boffa project has successively completed a cable-stayed bridge in 303 days closure, 23km long-distance off-road belts in 246 days, and steel structure installation joints in 162 days, which were highly recognized by the Chinese Ambassador to Guinea, and the clients.

During the construction of the project, CHALIECO also helped the local community improve the road and bridge traffic conditions, carried out local procurement, recruited local personnel to work, and leased local equipment to help the economic development of the surrounding communities in the mining area.



幾內亞 Boffa 項目 Fatala 河斜拉橋

The Fatala River Cable-stayed Bridge of Guinea Boffa Project



越南仁基氧化鋁工程項目——焙燒爐

Calcinator of Alumina Project in Vietnam



中鋁國際工程股份有限公司

China Aluminum International Engineering Corporation Limited

未來 Future

2021 年是“十四五”開局之年，是中國共產黨建黨 100 周年，也是中鋁國際改革創新發展的關鍵之年。中鋁國際將繼續以習近平新時代中國特色社會主義思想為指導，堅定發展信心，強化價值管理，主動全面變革，以科技創新為驅動，深入開展關鍵技術攻關，為企業發展注入科技動力；以市場為導向，鞏固傳統有色行業市場地位，提升公司新興業務效益和規模；以綠色發展為基調，推進環保創新和節能減排，實現企業與環境的和諧發展；積極回應“一帶一路”倡議，深耕海外市場，持續激發企業高質量發展新動能。

潮起江海千帆競，迎風奮楫正當時。中鋁國際也將繼續勇擔新使命，謀求新作為，不斷增強企業競爭力、創新力、影響力、控制力和抗風險能力，以實幹擔當創建具有國際競爭力的世界一流有色金屬工程技術公司。



展望 e Outlook

2021 is the first year of the "14th Five-Year Plan", and the 100th anniversary of the founding of the Communist Party of China, which is also vital to CHALIECO's reform, innovation and development. CHALIECO will continue to adhere to Xi Jinping's Thoughts on Socialism with Chinese Characteristics in the New Era, firm the confidence in development, strengthen value management, and take the initiative to make comprehensive changes. Being driven by technological innovation and in-depth research on key technologies, we will inject new impetus into the development of the enterprise. Being market-oriented, we will consolidate the market position in the traditional non-ferrous industry, and enhance the efficiency and scale of the company's emerging business. Taking green development as the keynote, we will promote innovation on environmental protection and energy saving to realize the harmonious relation between enterprises and the environment. Actively responding to the Belt and Road Initiative, we will deeply promote overseas markets, and continue to stimulate new momentum for high-quality development of enterprises.

Thousands of sails in the rivers and seas are rising, ready for the new journey. CHALIECO will also continue to bravely assume new missions, seek new achievement, enhance its corporate competitiveness, innovation, influence and anti-risk capabilities to create a world-class non-ferrous metal engineering company with international competitiveness.

ESG 指標索引 ESG Index

章節	指標披露	頁碼
範疇：環境		
A1：排放物		
一般披露		
A1.1	排放物種類及相關排放資料	P50-54
A1.2	溫室氣體總排放量（以噸計算）及（如適用）密度（如以每產量單位、每項設施計算）	P48-49
A1.3	所產生有害廢棄物總量（以噸計算）及（如適用）密度（如以每產量單位、每項設施計算）	P52-53
A1.4	所產生無害廢棄物總量（以噸計算）及（如適用）密度（如以每產量單位、每項設施計算）	P52-53
A1.5	描述所訂立的排放量目標及為達到這些目標所採取的步驟	P52-53
A1.6	描述處理有害及無害廢棄物的方法及描述所訂立的減廢目標及為達到這些目標所採取的步驟	P52-53
A2：資源使用		
一般披露		
A2.1	按類型劃分的直接及／或間接能源（如電、氣或油）總耗量（以千個千瓦時計算）及密度（如以每產量單位、每項設施計算）	P50-51
A2.2	總耗水量及密度（如以每產量單位、每項設施計算）	P53-54
A2.3	描述所訂立的能源使用效益目標及為達到這些目標所採取的步驟	P50-51
A2.4	描述求取適用水源上可有任何問題，以及所訂立的用水效益目標及為達到這些目標所採取的步驟	P53-54
A2.5	製成品所用包裝材料的總量（以噸計算）及（如適用）每生產單位佔量	公司業務 不涉及此 指標
A3：環境及天然資源		
一般披露		
A3.1	描述業務活動對環境及天然資源的重大影響及已採取管理有關影響的行動	P52-53
A4：氣候變化		
一般披露		
A4.1	描述已經及可能會對發行人產生影響的重大氣候相關事宜，及應對行動	P48-49
範疇：社會		
僱傭及勞工常規		
B1：僱傭		
一般披露		
B1.1	按性別、僱傭類型（如全職或兼職）、年齡組別及地區劃分的雇員總數	P60-61
B1.2	按性別、年齡組別及地區劃分的雇員流失比率	P60-61
B2：健康與安全		
一般披露		
B2.1	過去三年（包括匯報年度）因工作關係而死亡的人數及比率	P41-43
B2.2	因工傷損失工作日數	P41-43
B2.3	描述所採納的職業健康與安全措施，以及相關執行及監察方法	P41-42

Chapter	General Disclosures and KPIs	Page No.
A: Environment		
Aspect A1: Emissions		
General disclosure		
A1.1	The types of emissions and respective emissions data	P50-54
A1.2	Greenhouse gas emissions in total (in tons) and, where appropriate, intensity (e.g. perunit of production volume, per facility)	P48-49
A1.3	Total hazardous waste produced (in tons) and, where appropriate, intensity (e.g. perunit of production volume, per facility)	P52-53
A1.4	Total non-hazardous waste produced (in tons) and, where appropriate, intensity (e.g.per unit of production volume, per facility)	P52-53
A1.5	Description of the emission targets set and the steps taken to achieve them	P52-53
A1.6	Description of how hazardous and non-hazardous wastes are handled, the waste reduction goals set and the steps taken to achieve these goals	P52-53
Aspect A2: Use of resources		
General disclosure		
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility)	P50-51
A2.2	Water consumption in total and intensity (e.g. per unit of production volume, perfacility)	P53-54
A2.3	Description of energy use efficiency targets set and the steps taken to achieve these goals	P50-51
A2.4	Description of issues (if any) in sourcing water that is fit for purpose, And the water efficiency set and the steps taken to achieve these goals	P53-54
A2.5	Total packaging material used for finished products (in tons) and, if applicable, with reference to per unit produced	Irrelevant indicator
Aspect A3: Environment and natural resources		
General disclosure		
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them	P52-53
Aspect A4: Climate change		
General disclosure		
A4.1	Description the major climate related issues that have and may have an impact on the issuer, and the response actions	P48-49
B: Society		
Employment and Labor Practice		
Aspect B1: Employment		
General disclosure		
B1.1	Total workforce by gender, employment type (e.g. full-time or part-time), age group and geographical region	P60-61
B1.2	Employee turnover rate by gender, age group and geographical region	P60-61
Aspect B2: Health and safety		
General disclosure		
B2.1	Number and rate of work-related fatalities in the past three years (including reporting years)	P41-43
B2.2	Lost days due to work injury	P41-43
B2.3	Description of energy use efficiency targets set and the steps taken to achieve these goals	P41-42

章节	指標披露	頁碼
B3: 發展及培訓		
一般披露		
B3.1	按性別及雇員類別（如高級管理層、中級管理層等）劃分的受訓雇員百分比	P60-62
B3.2	按性別及雇員類別劃分，每名雇員完成受訓的平均時數	P60-62
B4: 勞工準則		
一般披露		
B4.1	描述檢討招聘慣例的措施以避免童工及強制勞工	P60-61
B4.2	描述在發現違規情況時消除有關情況所採取的步驟	P60-61
運營慣例		
B5: 供應鏈管理		
一般披露		
B5.1	按地區劃分的供應商數目	P44-45
B5.2	描述有關聘用供應商的慣例，向其執行有關慣例的供應商數目，以及相關執行及監察方法	P44-45
B5.3	描述有關識別供貨鏈每個環節的環境及社會風險的慣例，以及相關執行及監察方法	P44-45
B5.4	描述在揀選供應商時促使多用環保產品及服務的慣例，以及相關執行及監察方法	P44-45
B6: 產品責任		
一般披露		
B6.1	已售或已運送產品總數中因安全與健康理由而須回收的百分比	公司業務 不涉及此 指標
B6.2	接獲關於產品及服務的投訴數目以及應對方法	P30-32
B6.3	描述與維護及保障知識產權有關的慣例	P38-40
B6.4	描述質量檢定過程及產品回收程序	P30-32
B6.5	描述消費者資料保障及私隱政策，以及相關執行及監察方法	公司業務 不涉及此 指標
B7: 反貪污		
一般披露		
B7.1	于匯報期內對發行人或其雇員提出並已審結的貪污訴訟案件的數目及訴訟結果	P20-21
B7.2	描述防範措施及匯報程序，以及相關執行及監察方法	P20-21
B7.3	描述向董事及員工提供的反貪污培訓	P20-21
社區		
B8: 社區投資		
一般披露		
B8.1	專注貢獻範疇（如教育、環境事宜、勞工需求、健康、文化、體育）	P66-74
B8.2	在專注範疇所動用資源（如金錢或時間）	P65-71

Chapter	General Disclosures and KPIs	Page No.
Aspect B3: Development and training		
General disclosure		
B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management)	P60-62
B3.2	The average training hours completed per employee by gender and employee category	P60-62
Aspect B4: Labor guidelines		
General disclosure		
B4.1	Description of measures to review employment practices to avoid child and forced labor	P60-61
B4.2	Description of steps taken to eliminate such practices when discovered	P60-61
Operational practices		
Aspect B5: Supply chain management		
General disclosure		
B5.1	Number of suppliers by geographical region	P44-45
B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored	P44-45
B5.3	Description of identifying environmental and social risks in each link of the supply chain, as well as relevant implementation and monitoring methods	P44-45
B5.4	Description of promoting multi-use environmental protection products and services in selecting suppliers, and the relevant implementation and monitoring methods	P44-45
Aspect B6: Product responsibility		
General disclosure		
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons	Irrelevant indicator
B6.2	Number of products and service-related complaints received and how they are dealt with	P30-32
B6.3	Description of practices relating to observing and protecting intellectual property rights	P38-40
B6.4	Description of quality assurance process and recall procedures	P30-32
B6.5	Description of consumer data protection and privacy policies, implementation and monitoring methods	Irrelevant indicator
Aspect B7: Anti-corruption		
General disclosure		
B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases	P20-21
B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored	P20-21
B7.3	Description of anti-corruption training provided to directors and employees	P20-21
Community		
Aspect B8: Community investment		
General disclosure		
B8.1	Focus areas of contribution (e.g. education, environmental concerns, labor needs, health, culture, sport)	P66-74
B8.2	Resources contributed (e.g. money or time) to the focus area	P65-71